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January 25, 2023

Director, Air Enforcement Division
Office of Civil Enforcement
U.S. Environmental Protection Agency
Mail Code 2242-A
1200 Pennsylvania Ave, N.W.
Ariel Rios Building South
Room 1119
Washington, DC 20460-0001

Re: Semi-Annual Compliance Status Report (Report)
Reporting Period July 1, 2022 through December 31, 2022
Motiva Enterprises LLC – Port Arthur Chemicals under the consent decree in the matter:
United States of America v. Flint Hills Resources Port Arthur, LLC, Civil Action Number 1:14-cv-00169,
United States District Court in the Eastern District of Texas, entered February 19, 2015 (Consent Decree)
Motiva Enterprises LLC
Port Arthur Chemicals
Port Arthur, Jefferson County, Texas

Motiva Enterprises LLC (formerly Motiva Chemicals LLC) is submitting its Report, for the reporting period of July 1, 2022, through December 31, 2022. The Report reflects the implementation status of those actions required in the Reporting Period. Action items are identified by their respective paragraph number in the Consent Decree. All certifications and other materials required to be submitted are included with the Report.

Motiva Enterprises LLC acquired 100% of the membership interest in Flint Hills Resources Port Arthur, LLC in October 2019. Shortly afterward, the name of Flint Hills Resources Port Arthur, LLC was changed to Motiva Chemicals LLC. On October 31, 2022, Motiva Chemicals LLC merged into Motiva Enterprises LLC. Motiva notified the United States prior to the merger and is currently working with the United States to formally transfer responsibility for the consent decree to Motiva Enterprises LLC.

Please contact Matt Baker at matt.baker@motiva.com with any questions regarding the Report contents or format.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Newman", is written over a horizontal line.

Jeff Newman
Executive Vice President and General Manager
Motiva Enterprises LLC

Enclosures

cc:

Associate Director
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1201 Elm Street, Suite 500
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Certified Mail Return Receipt Requested: 7022 0410 0003 5082 1540

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
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Washington, DC 20044-7611
Re: DOJ No. 90-5-2-1-10070
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Consent Decree Semi-Annual Compliance Status Report

July 1, 2022, through December 31, 2022

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Certification Statement

Per Paragraph 107 of the Consent Decree:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature: _____

Jeff Newman

Executive Vice President and General Manager
Motiva Enterprises LLC

GENERAL REPORTING REQUIREMENTS

Semi-Annual Compliance Status Reports

This Consent Decree¹ (CD) Semi-Annual Compliance Status Report (Report) is submitted in accordance with the requirements of Paragraph 101 of the CD. The Report demonstrates that Motiva Enterprises LLC² (Motiva), meets all applicable requirements of the CD except those noted in the Report.

Affirmative Relief Sections IV, V, and VI Implementation Progress Report

Per Subparagraph 101.a, please see below for a progress report on the implementation of the requirements in Sections IV, V, and VI of the CD (Affirmative Relief) at the Facility.

Date of Entry (DOE) for the CD was on February 19, 2015. The CD was lodged on March 20, 2014. Since Date of Lodging (DOL) and DOE, Motiva has successfully implemented the requirements in the CD as specified in Sections IV, V and VI of the CD as described below.

Actions already completed:

- Per Paragraph 15, installation of a video camera for each flare was completed by June 30, 2014, and the subsequent records were maintained by December 31, 2014.
- Per Paragraph 15A, installation of Net Heating Value (NHV) analyzer on Aromatics Unit (AU) Flare was completed by December 31, 2014 and the subsequent records were maintained by June 30, 2015.
- Per Paragraph 15B, FHR installed and commissioned a New Steam Flow Monitor for the 600 lb. steam on December 13, 2018, and the 150 lb. steam on January 11, 2019 for the LOU Flare. Motiva, per Paragraph 15B, installed and commissioned the replacement of the AU Flare 150 lb. Total Steam Flow Monitor on October 28, 2020.
- Per Paragraph 21, the Initial Waste Gas Minimization Plan (IWGMP) was first included in the January 1 – June 30, 2016, Report and will continue to be updated in future reports as required.
- Per Paragraph 32, FHR has operated each covered flare with the Automatic Control System (ACS) Steam to Vent Gas on a mass basis (S/VG_{mass}) and ACS supplemental gas flow rate by the dates noted in the CD. (Light Olefins Unit (LOU) Flare - Supplemental Gas flow rate on DOE and S/VG_{mass} on June 30,

¹ Consent Decree Civil Action Number 1:14-cv-00169, USAO File Number 2013V00893, and DOJ case number 90-5-2-1-10070

² Motiva Enterprises LLC acquired 100% of the membership interest in Flint Hills Resources Port Arthur, LLC in October 2019. Shortly afterward, the name of Flint Hills Resources Port Arthur, LLC was changed to Motiva Chemicals LLC. On October 31, 2022 Motiva Chemicals LLC merged into Motiva Enterprises LLC. Motiva notified the United States prior to the merger and is currently working with the United States to formally transfer responsibility for the consent decree to Motiva Enterprises LLC.

2014. AU Flare - Supplemental Gas flow rate on December 31, 2014, and S/VG_{mass} on June 30, 2014.)

- Per Subparagraph 34.b, FHR has notified the United States Environmental Protection Agency (EPA) of the intent to use an NHV analyzer on the LOU Flare and commenced operation of the NHV analyzer for compliance on or before December 31, 2015, but 30 days after the date of the letter submittal.
- Per Paragraph 64, FHR commenced repacking and replacement requirements including completion of the first set of Low-E valve replacements for the LOU during the Turnaround starting in October of 2012.
- Per Paragraph 74, FHR has implemented quarterly audits of the LDAR program.
- Per Paragraph 78, FHR completed the first LDAR Audit in February of 2014, the second LDAR Audit in April of 2016, and the third LDAR audit in April of 2018. Motiva completed the fourth LDAR Audit in October of 2020, the fifth LDAR Audit in November of 2022, and will continue with future scheduled LDAR Audits as required.
- Per Subparagraph 87.b, FHR completed the BWON One Time Review and Verification Process in February of 2014, and that report was submitted on June 16, 2015.
- Per Paragraph 103, Emissions Data was included for the previous reporting year for the first time in the January 1 – June 30, 2016, report and will continue be included in future reports as required.
- Per Appendix 4.1, the Mitigation Projects for the Diesel Emissions Reduction Project and the Energy Efficiency Project were timely completed.
- Per Appendix 5.1, FHR created a publicly available fence line webpage with data posted for a period of two years after the DOE. The publicly available fence line webpage was located at www.airmonitoringaccess.com from DOE to July 31, 2018.
- Per Paragraph 64, FHR completed the first cycle of Low-E valve repacking or replacements for the Cyclohexane unit during a Turnaround that started October 17, 2019.
- Per Paragraph 64, Motiva completed the one remaining cycle of Low-E valve repacking or replacements for the Gasoline Hydrogenation Unit during a Turnaround that started May 10, 2021.
- Per Paragraph 64, Motiva completed the one remaining cycle of Low-E valve repacking or replacements for the LOU Unit during a Turnaround that started March 7, 2022.

Several actions were not required to be completed during this Reporting Period but are scheduled to be completed within the timeframes provided in the CD. Those action items are:

- Per Paragraph 43 and 44, addition of the Section IV requirements to the Motiva New Source Review (NSR) or Title V permits is due prior to termination of the CD.
- Per Paragraph 64, completion of Low-E valve repacking or replacements is due to be completed in future Turnarounds.

Anticipated Compliance Schedule Conflicts

Per Subparagraph 101.b. Motiva does not currently have any anticipated conflicts with meeting the requirements of Sections IV, V, and VI.

AFFIRMATIVE RELIEF SECTION IV: FLARES REPORTING

Monitoring Instrument/Equipment Downtime; Override of ACS; and Emissions Exceedances.

Per Subparagraph 101.c. please find the information for CD Paragraph 102 covering the Downtime, ACS and Emissions Exceedances for Motiva's flares, related instruments, and equipment.

102.a. **Monitoring Instrument/Equipment Downtime.** *The total number of hours of downtime of each monitoring instrument/equipment required pursuant to Paragraph 17 expressed as both an absolute number and a percentage of time the Covered Flare that the instrument/equipment monitors is In Operation.*

Motiva operated each of the instruments and monitoring systems identified in Paragraph 17 on a continuous basis when the Covered Flares were In Operation and Capable of Receiving Sweep, Supplemental, and/or Waste Gas. See Table 2-1 for the amount of downtime for each instrument, expressed as both an absolute number of hours and percentage of time.

Table 2-1. Instrument/Monitoring System Downtime

LOU Flare	Instrument Measuring Wind Speed		Video Camera		Optional Utilization of a NHV Analyzer	
Calendar Quarter	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation
Quarter 3	0.00	0.00%	0.00	0.00%	11.3	0.51%
Quarter 4	0.00	0.00%	0.00	0.00%	0.00	0.00%
	Vent Gas Flow Monitor & Molecular Weight Analyzer		Total Steam Flow Monitor			
Calendar Quarter	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation		
Quarter 3	0.00	0.00%	0.00	0.00%		
Quarter 4	0.00	0.00%	0.00	0.00%		

Table 2-1. Instrument/Monitoring System Downtime (continued)

AU Flare	Instrument Measuring Wind Speed		Video Camera		NHV Analyzer	
Calendar Quarter	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation
Quarter 3	0.00	0.00%	0.00	0.00%	9.00	0.41%
Quarter 4	0.00	0.00%	0.00	0.00%	0.00	0.00%
	Vent Gas Flow Monitor & Molecular Weight Analyzer		Total Steam Flow Monitor			
Calendar Quarter	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation		
Quarter 3	0.00	0.00%	0.00	0.00%		
Quarter 4	0.00	0.00%	0.00	0.00%		

- 102.b. Monitoring Instrument/Equipment Downtime.** *If the total number of hours of downtime of any monitoring instrument/equipment required pursuant to Paragraph 17 exceeds 110 hours in any calendar quarter an identification of the periods of downtime by date, time, cause (including Malfunction or maintenance), and, if the cause is asserted to be a Malfunction, the corrective action taken.*

The total number of hours of downtime of any monitoring instrument/equipment required pursuant to Paragraph 17 did not exceed 110 hours in any Calendar Quarter.

- 102.c. Override of Automatic Control System.** *The total number of hours in which FHR manually overrode the ACS required in Paragraph 32, expressed both as an absolute number of hours and a percentage of time the Covered Flare was In Operation.*

Motiva operated an ACS that automated the control of Supplemental Gas and S/VGmass to each Covered Flare. See Table 2-2 below for the total number of hours and the percentage of time Motiva manually overrode the ACS when the Covered Flare was In Operation.

Table 2-2 Override of ACS for each Covered Flare

LOU Flare	Supplemental Gas Flow Rate		Control of S/VGmass	
Calendar Quarter	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation
Quarter 3	70.9	3.21%	85.4	3.87%
Quarter 4	308.3	13.96%	159.3	7.21%

AU Flare	Supplemental Gas Flow Rate		Control of S/VGmass	
Calendar Quarter	Absolute Number of Hours	Percent Downtime When Flare was In Operation	Absolute Number of Hours	Percent Downtime When Flare was In Operation
Quarter 3	0.00	0.00%	0.00	0.00%
Quarter 4	12.3	0.56%	0.00	0.00%

102.d. Override of Automatic Control System. If the reason for the override was not one of the exceptions set forth in Paragraph 33 or if the total number of hours in which the ACS was overridden exceeds 110 hours in any calendar quarter, an identification of the periods of override (that exceed 110 hours) by the date, time, duration, reason for the override, and corrective actions taken.

The Steam and Supplemental Gas Automatic Control Systems exceeded 110 hours of override in the fourth calendar quarter. Identification of periods of override by date, time, and cause are provided in Table 2-3. All periods of ACS override for both Covered Flares were within an exemption set forth in Paragraph 33.

Table 2-3.

Steam Automatic Control System Override

Start	End	Duration (Hrs)	Reason for Override	Corrective Action
10/1/22 00:00	10/1/22 20:35	20.58	P33: SSM of unit	ACS Online after personnel made process adjustments.
10/20/22 10:30	10/20/22 10:35	0.08	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
12/01/22 14:05	12/01/22 14:15	0.17	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
12/19/22 14:05	12/19/22 14:15	0.17	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
12/23/22 05:45	12/25/22 07:35	46.25 Intermittently	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
12/27/22 09:25	12/28/22 14:45	29.33	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.

Supplemental Gas Automatic Control System Override

Start	End	Duration (Hrs)	Reason for Override	Corrective Action
10/01/22 0:35	10/02/22 04:25	27.83	P33: SSM of unit	ACS Online after personnel made process adjustments.
10/18/22 09:55	10/18/22 13:25	1.67 Intermittently	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
10/20/22 08:35	10/21/22 09:00	17:42 Intermittently	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
12/19/22 05:55	12/21/22 14:40	53.24 Intermittently	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.
12/21/22 16:45	12/31/22 18:10	351.59 Intermittently	P33: Stop smoke emissions	ACS Online after personnel made process adjustments.

102.e. *Inapplicability of Standards in Paragraphs 34–37. The total number of hours, expressed as both an absolute number of hours and a percentage of time that the Covered Flare was In Operation, in which the requirements of Paragraphs 34–37 were not applicable because the only gas or gases being vented was/were Pilot Gas and/or Purge Gas; for purposes of Subparagraphs 102.f. and 102.g, all remaining hours shall be termed “Hours of Applicability”.*

The absolute number of hours and the percentage of time that the Work Practice Standards set forth in Paragraphs 34 through 37 were inapplicable are shown in Table 2-4 for each Covered Flare. The Work Practice Standards set forth in Paragraphs 34 through 37 are inapplicable when there is no Waste Gas vented to the Covered Flare.

Table 2-4. Inapplicability of the Work Practice Standards in Paragraphs 34 through 37

Calendar Quarter	Subparagraph 34.a, 34.b iii, 35.a, Paragraph 36, 37			
	LOU Flare		AU Flare	
	Absolute Number of Hours	Percentage of Time	Absolute Number of Hours	Percentage of Time
Quarter 3	1133.42	51.3%	2042.42	92.5%
Quarter 4	1376.58	62.3%	1273.33	99.8%

102.f. Exceedances of Standards in Subparagraphs 34.b, 35.a, and 37. During the Hours of Applicability, the total number of hours, expressed as both an absolute number of hours and a percentage of time the Covered Flare was In Operation, of exceedances of the emissions standards in Subparagraphs 34.b, 35.a, and 37; provided however, that if the exceedance of these standards was less than 110 hours in the calendar quarter and was due to one or more of the exceptions set forth in Paragraph 38, the report shall so note; and

During the Hours of Applicability, or when the Covered Flare was receiving Potentially Recoverable Gas, Motiva exceeded the Work Practice Standards in excess of 110 hours in a Calendar Quarter for the Covered Flares.

Paragraphs 34, 35, and 37 Work Practice Standard exceedances, with and without the Paragraph 38 downtime exemptions applied, are reported Table 2-5 and Table 2-6 below.

Table 2-5. Absolute Number of Hours and Percentages of Time of Work Practice Standard Exceedances – Without Applying the Paragraph 38 Exemptions

LOU Flare	Subparagraph 34.b.ii Without Exemptions		Subparagraph 35.a Without Exemptions		Paragraph 37 Without Exemptions	
Calendar Quarter	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation
Quarter 3	452.6	20.50%	293	13.27%	459.2	20.80%
Quarter 4	215.8	9.77%	113.6	5.14%	193.1	9.04%

AU Flare	Subparagraph 34.b.iii Without Exemptions		Subparagraph 35.a Without Exemptions		Paragraph 37 Without Exemptions	
Calendar Quarter	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation
Quarter 3	0.3	0.01%	0.00	0.00%	0.6	0.03%
Quarter 4	0.0	0.00%	0.00	0.00%	0.00	0.00%

**Table 2-6. Absolute Number of Hours and Percentages of Time of Work Practice
Standard Exceedances – Applying the Paragraph 38 Exemptions**

LOU Flare	Subparagraph 34.b.ii With Exemptions		Subparagraph 35.a With Exemptions		Paragraph 37 With Exemptions	
Calendar Quarter	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation
Quarter 3	449.4	20.35%	293	13.27%	456.4	20.67%
Quarter 4	215.8	9.77%	113.6	5.14%	193.1	9.04%

AU Flare	Subparagraph 34.b.iii With Exemptions		Subparagraph 35.a With Exemptions		Paragraph 37 With Exemptions	
Calendar Quarter	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation	Absolute Number of Hours	Percentage of Time when the Flare was In Operation
Quarter 3	0.3	0.01%	0.00	0.00%	0.6	0.03%
Quarter 4	0.0	0.00%	0.00	0.00%	0.00	0.00%

102.g. *Exceedances of Standards in Subparagraphs 34.b, 35.a, and 37. During the Hours of Applicability, if the exceedance of the emissions standards in Subparagraphs 34.b, 35.a, and 37 was not due to one of the exceptions in Paragraph 38, or if the exceedance was due to one or more of the exceptions in Paragraph 38 but the total number of hours caused by the exceptions in Paragraph 38 was greater than 110 an identification of each Block Period that exceeded the standard, by time and date; the cause of the exceedance (including Startup, Shutdown, maintenance, or Malfunction), and if the cause is asserted to be a Malfunction, an explanation and any corrective actions taken.*

Work Practice Standard exceedances due to Malfunction, or reasons not included in Paragraph 38 are reported in Table 2-7 below. Paragraph 102.b documents Instrument and/or Monitoring System downtime exceeding 110 hours.

During multiple Block Periods throughout this reporting period, the LOU Vent Gas Flow Monitor measured zero Vent Gas flow to the LOU Flare. A measurement of zero Vent Gas flow caused Subparagraph 34.b or 35.a. Work Practice Standard exceedances. Motiva evaluated the technical specifications of the Vent Gas Flow Monitor and believes that a measurement of zero flow is within the plus or minus five percent error per Appendix 1.10 of the CD based on information from the vendor.

Table 2-7. Exceedances of Work Practice Standards in Subparagraphs 34.b, 35.a, and Paragraph 37

Covered Flare / Reason	Work Practice Standard Exceedance Paragraph(s)	Quarter	Block Period (Start)	Block Period (End)	Block Period Interval	Total Block Periods
LOU Flare / Outside of Paragraph 38	34.b.ii, 35, 37	3	07/01/22 01:00	07/02/22 06:50	5 minutes	168
	Cause: During the startup of the LOU, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 35, 37	3	07/10/22 09:25	07/11/22 13:35	5 minutes	8
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	3	07/15/22 12:35	07/23/22 10:30	5 minutes	1954
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	3	07/25/22 10:15	07/28/22 13:55	5 minutes	174
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	3	08/01/22 11:15	08/01/22 17:10	5 minutes	71
	Cause: During an upset, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 35, 37	3	08/11/22 14:45	08/30/22 10:30	5 minutes	526
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 35, 37	3	09/03/22 21:50	09/19/22 10:05	5 minutes	2258
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	3	09/26/22 11:30	09/27/22 19:00	5 minutes	55
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	3/4	09/29/22 06:45	11/08/22 05:10	5 minutes	1942
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 35.a, 37	4	11/10/22 09:55	11/14/22 06:00	5 minutes	57
	Cause: During an upset, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	4	11/16/22 13:25	11/16/22 13:30	5 minutes	1
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					

Covered Flare / Reason	Work Practice Standard Exceedance Paragraph(s)	Quarter	Block Period (Start)	Block Period (End)	Block Period Interval	Total Block Periods
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	4	11/28/22 12:55	11/28/22 14:25	5 minutes	14
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 35 a, 37	4	12/01/22 13:00	12/04/22 11:35	5 minutes	346
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 35 a, 37	4	12/06/22 16:25	12/07/22 00:45	5 minutes	17
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	4	12/14/22 09:00	12/15/22 09:20	5 minutes	5
	Cause: During a regeneration, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred intermittently. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	37	4	12/19/22 03:30	12/22/22 18:00	5 minutes	126
	Cause: During an upset, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	37	4	12/23/22 08:00	12/24/22 00:30	5 minutes	69
	Cause: During an upset (Winter Storm Elliott), low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					
LOU Flare / Outside of Paragraph 38	34.b.ii, 37	4	12/28/22 10:45	12/28/22 11:10	5 minutes	5
	Cause: During an upset, low BTU Waste Gas stream was sent to the LOU Flare, and Work Practice Standard exceedances occurred. Corrective action: Supplemental gas was added, and flow from the low BTU Waste Gas stream was reduced to return the LOU Flare operation within the Work Practice Standards.					

Additional Matters Required by other paragraphs in the CD for Section IV

Per Subparagraph 101.i. of the CD, please find the additional information required by any other paragraph of the CD Section IV addressed in the below.

Additional information required to be reported per Section IV. Affirmative Relief: Emissions Reductions from Flares

21. ***Initial Waste Gas Minimization Plan. In the first semi-annual report required under Section VIII of this Decree that is due after one year has passed since the Date of Entry, FHR shall include an Initial Waste Gas Minimization Plan, which shall include the following:***

The Initial Waste Gas Minimization Plan was submitted in a previous July semi-annual report. Per Paragraph 22, Motiva will submit an updated WGMP on an annual basis. The updated WGMP will be submitted in the July semi-annual report.

25.b. Submitting Summary of Internal Flaring Incident Reports. In each semi-annual report due under Section VIII of this Decree (Reporting Requirements), FHR shall include a summary of the following items for each Reportable Flaring Incident that occurred during the six-month period that the semi-annual report covers: i. Date; ii. Duration; iii. Amount of VOCs and HAPs released; iv. Root Cause(s); v. Corrective Action(s) completed; vi. Corrective Action(s) still outstanding; and vii. An analysis of any trends identified by FHR in terms of the number of Incidents, the root causes, or the types of Corrective Action.

Motiva's practice is to be comprehensive in its review of incidents that occur as Reportable Flaring events. As such, at times, the investigation may discover opportunities for improvement not causally related to the subject event. Therefore, while the cause map will contain both causal and non-causal factors, Motiva is addressing only those causal factors and solutions related to the Reportable Flaring incident in question.

If an investigation has any outstanding corrective actions the completion of the outstanding actions will be reported in subsequent reports per Subparagraph 25.a.vi.

Reportable Flaring Incidents that occurred for the current semi-annual period are included in Table 2-8. A summary of Reportable Flaring Incidents from previous semi-annual periods with outstanding Corrective Action is included in Table 2-9.

Table 2-8. Summary of Reportable Flaring Incident Reports

Reportable Flaring Incident Description	Date	Duration (hours)	Total VOC Emissions released (lbs.)	Total HAP Emissions released (lbs.)
A Reportable Flaring Incident resulted from a process unit upset that resulted in routing process streams to the flare for destruction.	7/16/2022	226.3	10185.31	471.17
<p>Root Cause The root cause of this incident was low hydraulic servo oil pressure on the Propylene Refrigeration Compressor Turbine's Gimple Valve which caused the compressor to trip, resulting in flaring.</p> <p>All Corrective Action(s): The servo oil accumulator charge pressure was properly set, and the unit was restarted.</p> <p>Corrective Actions still Outstanding: As a result of the event, many recommendations have been made to prevent reoccurrence. No further direct corrective actions are outstanding.</p> <p>Incident Trends: No trends in the terms of incidents, the root causes, or the types of corrective actions were identified during this investigation.</p>				

Reportable Flaring Incident Description	Date	Duration (hours)	Total VOC Emissions released (lbs.)	Total HAP Emissions released (lbs.)
A Reportable Flaring Incident resulted from a process unit upset that resulted in routing process streams to the flare for destruction.	9/29/2022	25.08	11350.66	782.29
Root Cause: The root cause of this incident was the loss of instrument air and nitrogen backup. All Corrective Action(s): Instrument air was restored, and normal operations commenced. Corrective Actions still Outstanding: All corrective actions are complete. Incident Trends: No trends in the terms of incidents, the root causes, or the types of corrective actions were identified during this investigation.				

Table 2-9. Summary of Reporting Flaring Incidents - Corrective Actions Outstanding from the Previous Report

Reportable Flaring Incident Description	Date	Duration (hours)	Total VOC Emissions released (lbs.)	Total HAP Emissions released (lbs.)
No outstanding corrective actions from the previous report				

29.b.i.2. *Periods in which the Compressor is shut down (including the subsequent restart) due to by operating conditions (such as high temperatures or large quantities of entrained liquid in the Vent Gas) outside the design operating range of the FGRS, including the associated knock out drum(s), such that the outage is necessary for safety and/or to preserve the mechanical integrity of the FGRS. By no later than 60 days after any such period of outage, FHR shall investigate the root cause and all contributing causes of the outage and shall implement, as expeditiously as practicable, corrective action, if any, to prevent a recurrence of the cause(s). In the reports due under Section VIII of this Decree, FHR shall describe each outage that occurred under the conditions identified in this Subparagraph, including the date, duration, cause(s), corrective action, and the status of the implementation of corrective action.*

Motiva's practice is to be comprehensive in its review of incidents that occur as periods in which an FGRS Compressor was shut down due to operating conditions outside the design operating range of the FGRS. As such, at times, the investigation may discover opportunities for improvement not causally related to the subject event. Therefore, while the cause map will contain both causal and non-causal factors, Motiva is addressing only those causal factors and solutions related to the Periods in which an FGRS Compressor

was shut down due to operating conditions outside the design operating range of the FGRS incident in question.

A summary of Periods in which an FGRS Compressor was shut down due to operating conditions outside the design operating range of the FGRS is included in Table 2-10.

Table 2-10. FGRS Compressor Shutdown Periods Due to Operating Conditions outside the Design Operating Range

FGRS Outage Description	Date	Duration (hours)
The FGRS shut down due to operating conditions outside of the design of the FGRS.	11/09/2022	1.4
	Root Cause: Elevated suction pressure at both A&B compressors resulted in an FGRS trip. All Corrective Actions: The FGRS was restarted when suction pressures stabilized, and normal operations commenced. Corrective Actions still Outstanding: No corrective actions were identified related to the FGRU compressors.	
FGRS Outage Description	Date	Duration (hours)
The FGRS shut down due to operating conditions outside of the design of the FGRS.	12/19/2022	0.25
	Root Cause: FGRU shut down on high vibration during a heavy rain event. All Corrective Actions: FGRS compressors were restarted, and normal operations commenced. It appears that the heavy rain was the only causal factor. Corrective Actions still Outstanding: No corrective actions were identified related to the FGRU compressors.	
FGRS Outage Description	Date	Duration (hours)
The FGRS shut down due to operating conditions outside of the design of the FGRS.	12/23/2022	1.1
	Root Cause: FGRU shut down on high suction pressure during a Winter Storm Elliot. All Corrective Actions: FGRU compressor were placed back online, but ultimately the entire facility was brought down for repairs. Corrective Actions still Outstanding: No corrective actions were identified related to the FGRU compressors.	

Emissions Data

Per Paragraph 103, total emissions of VOCs, NO_x, CO₂, methane, and ethane from Motiva Covered Flares, for the prior calendar year, in tons per year will be reported in the July semi-annual report.

Additional Matters

Subparagraph 101.j requires Motiva to report “any additional matters that Motiva believes should be brought to the attention to EPA.” Motiva has no additional matters this reporting period.

During this Reporting Period, there were 0 hours when all three FGRS compressors were down for maintenance as described in Paragraph 29.

AFFIRMATIVE RELIEF SECTION V: LEAK DETECTION AND REPAIR REPORTING

Section V Semi-Annual Reporting Requirements

Per Subparagraph 101.e of the CD, please find information regarding the reporting requirements under Section V, as described in Paragraph 104.

Paragraph 104 Enhanced LDAR Program Compliance Status

104.a *The information required in Subsection V.G, Paragraph 71.*

- 71.** ***Valve and Connector Replacement/Improvement Report. In each compliance status report due under Section VIII (Reporting) of this Decree, FHR shall include a separate section in the Report that: (i) describes the actions it took to comply with this Subsection V.G, including identifying the number and types of pieces of equipment that triggered a requirement in Subsection V.G, the ranges of Screening Values for identified equipment, the types of actions taken (i.e., replacement, repacking, or improvement), and the dates when the action was taken; (ii) identifies any required actions that were not taken and explains why; and (iii) identifies the schedule for any known, future replacements, repackings, improvements, or eliminations.***

To address this requirement, Motiva has prepared a separate section (Appendix C) that contains its demonstration of compliance with each Paragraph of Subsection V.G.

104.b *A certification that LDAR training in Accordance with Paragraph 72 of this Consent Decree*

- 72.** ***Prior to the date of Lodging, FHR developed a training protocol and implemented a training program at the Facility which includes the following features:***
- a. For FHR's personnel newly-assigned to LDAR responsibilities, FHR requires LDAR training prior to each employee beginning such work;***
 - b. For all FHR personnel assigned LDAR responsibilities, FHR requires completion of annual (I.e., once each calendar year) LDAR training;***
 - c. For all other Facility operations and maintenance personnel (including contract personnel) who have routine duties relevant to LDAR, FHR provides and/or requires completion of an initial training program that includes instruction on aspects of LDAR that are relevant to the person's duties. For individuals covered by this Paragraph, "refresher" training in LDAR must be performed at least annually during the term of this Consent Decree.***

Motiva certifies to the best of its knowledge and belief, that all training as described in Paragraph 72 for a) newly assigned Motiva personnel, b) all

Motiva personnel assigned LDAR responsibilities, and c) all other Motiva operations and maintenance personnel (including contract personnel) who have routine duties relevant to LDAR, was completed within the defined timelines.

104.c ***Any deviations identified in the QA/QC procedures performed under Subsection V.I, Paragraph 74, as well as any corrective actions taken under that Subsection;***

74. ***Commencing by no later than the first full calendar quarter after the Date of Entry, at unannounced times, an LDAR-trained employee or contractor of FHR, who does not serve on a routine basis as an LDAR monitoring technician, shall continue to undertake the following no less than once per calendar quarter: (a) For the prior calendar quarter: (i) Review whether any pieces of equipment that are required to be in the LDAR program are not included; (ii) Verify that equipment was monitored at the appropriate frequency; (iii) Verify that proper documentation and sign offs have been recorded for all equipment placed on the DOR list; (iv) Ensure that repairs have been performed in the required periods; (v) Review monitoring data and equipment counts (e.g., number of pieces of equipment monitored per day) for feasibility and unusual trends; (vi) Verify that proper calibration records and monitoring instrument maintenance information are maintained; and (vii) Verify that other LDAR program records are maintained as required. (b) Conduct random observations of each LDAR monitoring technician in the field to ensure monitoring is being conducted as required***

a. For this Reporting Period, defined as July 01, 2022, through December 31, 2022, reviews were completed for the 2nd quarter of 2022 and the 3rd quarter of 2022. The review for the 4th quarter of 2022 will be performed at an unannounced time in the 1st quarter of 2023 and results will be included in the July 2023 semi-annual CD compliance status report.

i. During field audits of randomly selected Process and Instrumentation Diagrams (P&IDs) related to LDAR, the third-party reviewer made a determination as to whether any pieces of equipment that are required to be in the LDAR program were not included. The reviews completed during this Reporting Period indicated that all equipment required to be in the LDAR program was included.

ii. The components identified in these field audits were checked against the LeakDAS database to ensure that the equipment was

monitored at the appropriate frequencies. The 3rd quarter 2022 audit completed during this Reporting Period indicated that components in the Cyclohexane unit may have not been monitored at the appropriate frequency.

- Motiva had identified five (5) components (one (1) valve and four (4) connectors) in the Cyclohexane Unit with an incorrect exemption prior to the 3rd Quarter 2022 audit. Motiva removed the exemption from these components in the LDAR database and monitored them according to their monitoring frequency.

iii. Delay of Repair (DOR) sign-offs and documentation were verified in each quarterly review. The reviews completed during this Reporting Period indicated that all DOR sign-offs and documentation were recorded for the equipment placed on the DOR list.

iv. Repair frequencies were verified for all leaks found during the quarter. The reviews completed during this Reporting Period indicated that all repairs were performed within the required periods.

v. Monitoring data and equipment counts of components monitored were checked for monitoring feasibility/unusual trends. The reviews completed during this Reporting Period indicated that the monitoring completed was feasible with no unusual trends.

vi. Calibration records for both the daily calibration and the quarterly precision calibrations, as well as the monitoring instrument maintenance information records, were evaluated. The reviews completed during this Reporting Period indicated that the calibrations and instrument maintenance information was completed.

vii. A representative sample of database records was reviewed, and verification of paper copies being maintained was performed. The reviews completed during this Reporting Period indicated that other LDAR program records, including database and paper records, were maintained as required with the exception below.

- During the 3rd quarter 2022 audit, three (3) components (two (2) valves and one (1) connector) on Delay of Repair were observed to not have a Delay of Repair hang tag in the field. Motiva rehung Delay of Repair tags on the three (3) components.

b. Random observations were conducted for LDAR monitoring technicians in the field to ensure monitoring was being performed as required. The reviews completed during this Reporting Period indicated that all technicians observed were performing monitoring as required, except for minor technique adjustments as noted below.

- During the 2nd quarter 2022 quarterly audit, one (1) LDAR Technician was noted to have a slightly faster pace while monitoring, and one (1) LDAR Technician was noted to have an opportunity with separation of probe while monitoring. The technicians were coached in these areas.

104.d *For the applicable semi-annual compliance status report as identified in Paragraph 80, the LDAR Audit Report; and*

80. *LDAR Audit Reports. FHR shall have an LDAR audit report prepared by no later than one hundred and twenty (120) days after the LDAR Audit Commencement Date. In the first semi-annual compliance status report required pursuant to Section VIII that is due no less than ninety (90) days after the LDAR Audit Completion Date, FHR shall include the third-party auditor's description of the procedures and methodology used to conduct the audit, including those used in undertaking the comparative monitoring required by Subparagraphs 79.a–79.c, and how the third party otherwise complied with the audit requirements of this Decree.*

Motiva conducted its fifth LDAR Audit from September 19, 2022 – November 7, 2022. As agreed with the United States Environmental Protection Agency (EPA) and Department of Justice (DOJ) and as provided in Paragraph 82.b. of the CD, the Corrective Action Plan is required to be submitted, not the LDAR Audit. The required information from the third-party LDAR Audit, as well as the auditor's description of the procedures and methodology used to conduct the audit, are included in Attachment A.

104.e *For the applicable Semi-annual compliance status report as identified in Subparagraph 82.b, the final CAP (if any), together with any other items required by subparagraph b.*

82.b. *Submission of the Final CAP to EPA. In the first semi-annual compliance status report required pursuant to Section VIII that is due no less than 90 days after the LDAR Audit Completion Date, FHR shall submit the final CAP to EPA, together with a certification of the completion of each item of corrective action. If any action is not completed by the time of the submission of the Final CAP, FHR shall explain the reasons, together with a proposed schedule for completion as*

expeditiously as practicable. FHR shall submit a supplemental certification of completion by no later than the next compliance status report that is required pursuant to Section VIII.

The final Corrective Action Plan (CAP) is enclosed in Attachment B as well as the certification of completion of each item of the corrective action.

- 84.** *In the first compliance status report required pursuant to Section VIII that is due no less than 90 days after the LDAR Audit Completion Date, FHR shall certify to EPA that, to the signer's best knowledge and belief formed after reasonable inquiry: (i) except as otherwise noted, the Facility is in compliance with all applicable LDAR regulations and this ELP; (ii) FHR has completed all corrective actions, if applicable, or is in the process of completing all corrective actions pursuant to a CAP; and (iii) all equipment at the Facility that is regulated under LDAR has been identified and included in the Facility's LDAR program. To the extent that FHR cannot make the certification in all respects, it shall specifically identify any deviations from Items (i)–(iii).*

Compliance with this Subparagraph was met and reported on during the first Semi-Annual Compliance Status Report submitted on January 29, 2016.

Additional Matters Required by Other Paragraphs in the CD for Section V

Per Subparagraph 101.i, please find the additional information required by any other Paragraph of the CD Section V, Affirmative Relief: Leak Detection and Repair addressed in the above paragraphs and Appendix C.

Additional Matters

Subparagraph 101.j requires Motiva to report “any additional matters that FHR believes should be brought to the attention of EPA.” Motiva addressed the additional matters related to the requirements in Section V, Affirmative Relief: Leak Detection and Repair in the above paragraphs.

Attachment A: Third Party LDAR Audit Summary

Motiva Enterprises LLC (Motiva)
Port Arthur Chemicals
Leak Detection and Repair (LDAR) Audit Report Summary

Per Section V paragraph 80 of the Consent Decree (CD), Motiva shall include the third-party auditor's description of the procedures and methodology used to conduct the audit, including those used in undertaking the comparative monitoring required by Subparagraphs 79.a–79.c of the CD, and how the third party otherwise complied with the audit requirements of the CD.

The audit team conducted a third-party audit of the Leak Detection and Repair (LDAR) program at the Motiva Chemicals facility located in Port Arthur, Texas. The Motiva Port Arthur Chemicals facility is required to perform LDAR audits per their Consent Decree filed on March 20, 2014 (Case 1:14-cv-00169). In conformance with Paragraph 78 of the Consent Decree, the LDAR Audit occurred for each Covered Process Unit with the LDAR Audit Commencement Date occurring no later than 21 to 27 months after the month of the prior LDAR Audit Commencement Date. The audit team conducted the first day of on-site inspection activities on September 19, 2022.

The audit scope consisted of the following key items:

- Compliance with the Motiva Chemicals Consent Decree (Case 1:14-cv-00169)
- Compliance with all applicable LDAR regulations
- Compliance with Method 21 of 40 CFR 60, Appendix A-7

In accordance with Paragraph 79 of the Motiva Port Arthur Chemicals facility Consent Decree, the specific tasks listed below were completed:

- Review of whether any pieces of equipment that are required to be in the LDAR program are not included;
- Verification that equipment was monitored at the appropriate frequency;
- Verification of whether proper documentation and signoffs have been recorded for all equipment placed on the Delay of Repair (DOR) list;
- Verification that equipment was repaired within the required periods;
- Review of monitoring data and equipment counts (e.g., number of components monitored per day) for feasibility and unusual trends;
- Verification that proper calibration records and monitoring instrument and maintenance information was maintained as required;
- Verification that other LDAR program records were maintained as required; and
- Comparative monitoring;
- Observations of LDAR monitoring technicians in the field to ensure that monitoring is being conducted as required; and
- Review of tagging and other field conditions.

The following documents were assessed in the records review portion of this audit:

- Valve Drill and Tap Policy
- DOR Approval Forms for DOR components within the audit timeframe
- LDAR Audible, Visual, and Olfactory Leaks Policy
- First Attempt at Repair Policy
- Delay of Repair for Shutdown
- Directed Maintenance Program
- CD Daily Certification Forms
- Drill and Tap Documentation
- General LDAR Monitoring Policy
- Monitoring Guidelines
- General Repair Policy
- LDAR Tagging Job Aid
- QA/QC Guideline
- Unsafe to Monitor (UTM) Plan
- LDAR Management of Change
- LDAR Training
- Difficult to Monitor (DTM) Plan
- Consent Decree LDAR QA/QC Reviews (Q3 2020, Q4 2020, Q1 2021, Q2 2021, Q3 2021, Q4 2021)
- Ethylene MACT Semi-annual Reports
- Hon Semi-annual Reports
- Consent Decree Semi-Annual Compliance Status Reports
- List of Pumps
- Motiva Chemicals Facility Weekly Pump Inspection Checklists
- CHX Environmental Pump Seal Inspections
- Offsite Environmental Pump Seal Inspections
- Certificates of Analysis for Calibration Gases
- Quarterly Drift Assessments
- Precision Calibration Reports
- Calibration Reports
- Connector Replacement and Improvement Program
- Maintenance Database Daily QA/QC Checklists
- LDAR Database Deficiencies (1/1/2018)
- Response to Follow Up Questions
- Title V Permit
- LDAR Awareness Training Course Status Report for 2020 and 2021
- List of Sampling Connection Systems
- 2020 Corrective Action Plan
- Percent Leaker Determinations
- Technician Audits

- Contractor Training Records
- Motiva Chemicals Facility Training Records
- CVS Inspection History form 2020 and 2021
- CVS Carseals Inspection History Report
- CVS AVO Walkdown for 2020 and 2021
- 2021 ENV LDAR Organization Chart
- Internal LDAR System Documentation
- LeakDAS Database Downloads
 - Pressure Relief Devices List
 - Master Component List
 - Inspection History
 - Internal Leak Repair History
 - Compliance Leak Repair History
 - Compliance Leaker Details History
 - Repair Delayed History Report
 - Late Repair Report (Report: R331_1)
 - Leaker Detail Report (R304_1)
 - Internal Leak Leaker Details Report
 - CVS Inspection History
 - DTM Inspection History
 - DTM Summary
 - UTM Summary
 - Valve Summary
 - Pump Documentation
 - List of Connectors
 - Component Out of Service History (R108)

AUDIT METHODOLOGY

All items reviewed can be categorized into the following: review of compliance documents, technician observations, field review, and comparative monitoring.

COMPLIANCE DOCUMENT REVIEW METHODOLOGY

The audit team provided Motiva with a request for records on August 30, 2022. The request included monitoring records for the period from September 1, 2020 –June 30, 2022. Some of the documents were received prior to arriving on site for the audit. All documents that were provided were reviewed for compliance with the Motiva Chemicals Consent Decree, 40 CFR 63, Subpart UU, H, 40 CFR 60, Subpart VV, TXRG5, 28MID, 28VHP, and Method 21.

LDAR data was analyzed to confirm that the monitoring frequencies and repair deadlines were met. Components placed on Delay of Repair (DOR) for the audit timeframe were reviewed to ensure appropriate documentation was maintained. Calibration records were inspected to ensure proper procedure.

TECHNICIAN OBSERVATIONS

On-site field observations were performed by the audit team that covered the following processes:

- Monitoring techniques used by the monitoring personnel, including the sample collection procedures in which factors such as probe positioning and collection duration were considered, equipment operation and on-site equipment maintenance.

The audit included observations of LDAR technicians as they performed their Method 21 monitoring.

FIELD REVIEW

The audit team conducted an intensive review of LDAR field conditions that included component identification, tagging and data management, field tagging procedures, and LDAR work practices in the selected process units.

The audit team extracted a random assortment of components from the facility's LDAR database and verified that the components were correctly characterized in the database. As part of the random field review, the audit team also examined select components included in the LDAR program to assess the quality of the MOC process. Several components listed as difficult-to-monitor were viewed to determine the accuracy of the difficult-to-monitor listing. Additionally, the audit team verified a portion of the pressure relief devices provided in the LDAR database were accurately tagged in the field.

In order to evaluate best-in-class methods for tagging, the audit team compiled a list of all active leaking components and verified that each such component had a current leak tag with the proper information clearly displayed. In addition to current leaking components, the audit team also verified that all previously leaking components were still tagged if applicable follow-up monitoring had not yet been completed (i.e., 3-month follow-up required for valves subject to 40 CFR 63, Subparts H and UU, 90-day follow-up required for connectors subject to 40 CFR 63, Subpart UU).

COMPARATIVE MONITORING METHODOLOGY

Comparative Monitoring Audit Leak Percentage

Per Paragraph 79.a of the CD, the Comparative Monitoring Audit Leak Percentage is calculated by comparing the amount of leaking components (connectors, valves, or pumps) found during the LDAR audit to the total number of components monitored during the audit. Note that only a subset of components for each process unit was monitored during the audit. Therefore, 95% confidence intervals are calculated in order to estimate the range in which the actual leak rate for components should fall, based on the fact that the comparative monitoring tested only a sub-sample of components for only a single point in time.

Historic Average Leak Percentage

This section describes the calculation methodology for the Historic, Average Leak Percentage from Prior Monitoring Events. All calculations are performed on a process unit basis in accordance with the CD. Paragraph 79.b provides guidelines for calculating this percentage for connectors, valves, and pumps. For valves, data from the four (4) quarters immediately preceding the audit were used for this calculation. For pumps, data from the twelve (12) months immediately preceding the audit were used for this calculation. For connectors, data from the two (2) monitoring periods directly preceding the audit (for connectors in the VHAP Process units, there will be one year of data and for connectors in the LOU there will be two years of data). Per paragraph 79 of the facility's CD, the comparative monitoring analysis utilizes the following leak definitions:

- Valves and Connectors – 250 ppm
- Pumps (except reciprocating pumps which retain their applicable regulatory leak definition) – 500 ppm

Because the CD does not define a specific methodology to determine leak percentage, these calculations are performed in accordance with the subject regulation for each process unit. The audit team utilized leak rate data provided by Motiva to complete these calculations.

Comparative Monitoring Leak Ratio

Paragraph 79.c of the CD requires the calculation of the “Comparative Monitoring Leak Ratio.” This ratio is calculated by comparing the Comparative Monitoring Audit Leak Percentage to the Historic, Average Leak Percentage from Prior Periodic Monitoring Events. Per the requirements in Paragraph 79.c of the CD, the Comparative Monitoring Leak Ratio was calculated for valves, connectors, and pumps.

Paragraph 82.a of the CD, Motiva is required to develop a preliminary corrective action plan (CAP) if the Comparative Monitoring Leak Ratio is 3.0 or higher.

Attachment B: Corrective Action Plan

Motiva Enterprises LLC - Port Arthur Chemicals

2022 LDAR Consent Decree Audit CAP

Per Paragraph 82.a.

Per Paragraph 82.b., Motiva Enterprises LLC (Motiva) Port Arthur Chemicals, certifies that each item of the corrective actions identified in the Corrective Action Plan (CAP) has been completed as described in the CAP.

Seq #	Finding #	Citation / Standard	Finding	Target Date	Resolution
1	1	Consent Decree (1:141-cv-00169 Paragraph 48(a))	There was one pressure relief device (PRD) that was documented in the LDAR database as 'in light liquid service' that was determined to actually be 'in gas/vapor service'. Gas/Vapor PRDs which are equipped with a closed vent system are required to be identified in the LDAR database under the consent decree.	Completed on 9/26/2022	Motiva updated the service for this component to gas/vapor in the site's LeakDas database. This component was identified as gas/vapor on site LDAR drawings.
2	2	<p>[MACT UU] 63.1023(e)</p> <p>[MACT UU] 63.1024(c)</p> <p>[MACT H] 63.162(f)</p>	<p>Components that are identified as leaking are required to be identified via "a weatherproof and readily visible identification". Additionally under the consent decree, equipment for which Delay of Repair (DOR) provisions are being utilized must be identified by tagging. Based on a review of field conditions, missing 'leaker tags' and 'DOR tags' were identified. Note, valves and connectors must maintain leak tags even after repair for required follow up monitoring.</p> <p>Components missing both 'leaker tags' and 'DOR tags':</p> <ul style="list-style-type: none"> - 202235 - 204152.2 - 704029.1 - 204172.1 - 924831 <p>Components missing just 'DOR tags':</p> <ul style="list-style-type: none"> - 915876 - 309396 <p>Components with a 'DOR tag' but no 'leaker tag':</p> <ul style="list-style-type: none"> - 316569 <p>Components not placed on DOR just missing 'leaker tags':</p> <ul style="list-style-type: none"> - 308563 - 533493.1 <p>Additionally, component J-1285.1 was tagged as a leaker but the tag number on the tag was listed as 'J-2185' which is a different component.</p>	<p>Completed on 9/22/2022</p> <p>Completed on 1/11/2023</p>	<p>Motiva re-hung the appropriate tags on the components and updated the tag for component J-1285.1.</p> <p>Motiva's LDAR contractor conducted a site tagging training refresher with field technicians.</p>

Motiva Enterprises LLC - Port Arthur Chemicals 2022 LDAR Consent Decree Audit CAP

Per Paragraph 82.a.

Per Paragraph 82.b., Motiva Enterprises LLC (Motiva) Port Arthur Chemicals, certifies that each item of the corrective actions identified in the Corrective Action Plan (CAP) has been completed as described in the CAP.

Seq #	Finding #	Citation / Standard	Finding	Target Date	Resolution
3	3	[MACT UU] 63.1022(b)(5)	One component (valve) in OSBL was found in the field that was not identified in the LDAR database. The component was the bleeder valve prior to a loading hose (for a vacuum truck) near tag 928316 in OSBL. The bleeder valve is not documented as being in the LDAR program. Equipment in service less than 300 hours/year is required to be identified in some method.	Completed on 9/29/2022	Motiva documented and identified the component on the site's less than 300 hours per year list.
4	NA	[CD] 82.a.	Comparative monitoring results during the audit resulted in a leak ratio of >3.0 for connectors in the Cyclo unit based on the sample group selected. It was noted that in reviewing the Cyclo unit historical data, the majority of first half 2022 connector monitoring was completed by the end of February due to outage planning. This change in schedule and weather conditions could impact differing historical leak rates versus audit leak rates.	Completed on 1/9/2023 Completed on 1/10/2023 Completed on 12/29/2022	To ensure proper Method 21 monitoring, Motiva's LDAR contractor conducted a Method 21 refresher training with its field technicians. Additionally, an in the field connector monitoring refresher was conducted by Motiva's LDAR contractor with its field technicians to review proper Method 21 monitoring on various types of connectors. Motiva's LDAR contractor supervision also conducted comparative monitoring audits of each field technician with a focus on connector monitoring results.

AFFIRMATIVE RELIEF SECTION VI: BWON REPORTING

VI. AFFIRMATIVE RELIEF: BENZENE WASTE OPERATIONS NESHP

- 89.a. *If FHR installs any new dual canister systems after the Date of Entry, FHR shall notify EPA of this installation in the next semi -annual compliance status report following completion of the installation.***

In accordance with the requirements of this Subparagraph, Motiva is providing a list of all locations where new dual carbon canister systems (CAS) were utilized by Motiva during the current reporting period. For all applications where a carbon canister system was utilized, including temporary locations, Motiva utilized a dual carbon canister system subject to the requirements of Subparagraph 89.b. through Subparagraph 89.d.

Table 4-1. New CAS installed during this semi-annual period

Number of Carbon Canister Systems	Location
0	No New CAS Installed

- 95. *At the end of each calendar quarter following commencement of quarterly sampling, FHR shall calculate a quarterly uncontrolled benzene quantity and shall estimate a projected calendar year uncontrolled benzene quantity based on the quarterly sampling results and the approved flow calculations. FHR shall submit the quarterly uncontrolled benzene quantity and projected calendar year uncontrolled benzene quantity in the Compliance Status Reports required pursuant to Section VIII for the two quarters covered by the report.***

Per paragraph 95, Motiva calculates the quarterly uncontrolled benzene quantity and the estimated projected calendar year uncontrolled benzene quantity based on the approved Sampling Plan. Table 4-2 contains the quarterly uncontrolled benzene¹ quantity for each identified sampling location and the total calculated quarterly EOL concentration per quarter. Table 4-2 also contains the estimated projected calendar year uncontrolled benzene quantity, based on the quarterly sampling results. Based on the samples collected per subparagraph 94.c, at no time did Motiva project the uncontrolled benzene for the calendar year to be greater than 2.0 Mg/yr.

¹ The values represented on Table 4-2, for both EOL locations, as identified on Motiva' BWON Sampling Plan, represent calculated benzene quantity for the EOL locations which are considered uncontrolled waste streams that qualify for the 10 ppmw exception under §61.342(c)(2). Importantly, these values are not representative of the uncontrolled benzene quantity reported in Motiva' Total Annual Benzene (TAB) report. The streams that are routed through the EOL sampling locations are less than 10 ppmw benzene concentration thus, per 40 CFR 61.342(c)(2), are exempt from control requirements. Therefore, these streams are included in Motiva' TAB but not in the uncontrolled benzene quantity, in accordance with this exemption.

Table 4-2. Quarterly and Annual Estimations of Uncontrolled Benzene Quantity

Period	Sump 65	LOU Cooling Tower	Total EOL	Projected Total EOL
	Calculated Benzene quantity per quarter (Mg)	Calculated Benzene quantity per quarter (Mg)	Calculated Benzene quantity per quarter (Mg)	Projected Annual Benzene (Mg) ²
3 rd Quarter 2022	0.0382	0.0005	0.0387	0.1791
4 th Quarter 2022	0.0306	0.0005	0.0311	0.1654

- 96.b.** *In each compliance status report required pursuant to Section VIII of this Decree, FHR shall include each BWON Corrective Measures Plan that it developed under Subparagraph 96.a and shall describe with specificity the status of the implementation of the Plan.*

Not applicable. The calculated uncontrolled benzene quantity pursuant to Paragraph 95 did not exceed 0.5 Mg for either of the two quarters covered in this Compliance Status Report. In addition, the estimated projected uncontrolled benzene quantity for the calendar year did not exceed 2.0 Mg/yr during this compliance Status Report. Therefore, Motiva was not required to develop a BWON Corrective Measures Plan.

Section VI Semi-Annual Reporting Requirements

Per Subparagraph 101.f, please find information regarding the reporting requirements under Section VI, as described in Paragraph 105.

- 105** *Benzene Waste Operation NESHAP. In the semi-annual compliance status report that is required on January 31 of each year, FHR shall submit the following information:*

- 105.a.** *All locations in the Facility, where, as of the Date of Entry, carbon canister systems are used as control devices under Subpart FF (Paragraph 89.a) (this information is required to be reported only in the first compliance status report that is submitted under this Decree);*

Not Applicable. Motiva submitted the locations of all carbon canister systems used as control devices under Subpart FF with the first compliance status report submitted on January 29, 2016. No additional action is required under this subparagraph.

- 105.b.** *An identification of all laboratory audits, if any, completed during the prior year, including a description of the methods used in the audit and the results of the audit (Paragraph 91);*

² This value is estimated based on the year-to-date quarterly average of the calculated quarterly benzene quantity multiplied by four. The fourth quarter's projects is the sum of the year's Total EOL.

On October 19, 2021, Motiva concluded a laboratory audit for the Earth Analytical Sciences, Inc. Beaumont facility; and on October 22, 2021, Motiva concluded a laboratory audit for the Erofins Xenco, LLC-Houston (Xenco) facility. Motiva retained a third-party contractor to conduct the audits, in accordance with Subparagraph 91. For a description of the methods used in the audits as well as the results of the audits see Appendix D-1: Earth Analytical Sciences Lab Audit and Appendix D-2: XencoLab Audit.

105.c. *A description of the measures taken, if any, during the prior year to comply with the training provisions of Paragraph 93; and.*

In accordance with Subparagraph 93.a., on December 19, 2013, Motiva engaged a third-party consultant to develop and conduct BWON sampling training for all personnel who will be conducting sampling in accordance with 40 CFR 61.355.

For this past reporting year, Motiva executed this training on December 14, 2022, for both Motiva employees and contractors, who could be responsible for collecting benzene samples for BWON compliance purposes. Motiva maintains the training records.

In accordance with Subparagraph 93.b., prior to 180 days from the DOE, Motiva identified, reviewed, and updated (where necessary), operating procedures for control devices and treatment processes used to comply with BWON.

In accordance with subparagraph 93.c., prior to 270 days from the DOE, operators who are assigned to relevant BWON equipment completed initial and refresher training on relevant equipment subject to BWON regulations. Training comprehension is verified in various ways, such as written reviews, oral reviews and skill/knowledge demonstrations. Motiva ensures operators and essential personnel receive training refreshers, per their assigned job duties.

In accordance with Subparagraph 93.d., Motiva's practice is to require Motiva employees and contractors hired to perform the requirements of Section VI of this CD, to have the proper training prior to performing the tasks. Motiva employees are required to complete a computer-based-training and assessment to maintain competency of requirements of the section. Motiva personnel conduct an annual training review for contractors (third party LDAR contractor and third-party sampling contractor) performing work under BWON sections of this CD. In addition, Motiva personnel review BWON sample reports' chain of custody to verify that the individual who collected the samples received training per Motiva's Sampling Plan.

105.d. *A summary of the prior year's sampling results required under Subparagraph 94.c, and the prior year's calculations of the quarterly and projected annual uncontrolled benzene quantities under Paragraph 95.*

Per subparagraph 94.c, Motiva has identified two end-of-line sampling point locations: (1) Sump 65, which is located immediately upstream of the API separator, and (2) the LOU cooling tower blowdown under its approved Sampling Plan. Motiva collects a minimum of three representative samples from each

identified sampling location per quarter in accordance with Subparagraph 94.c. Table 4-3 below contains a summary of the prior year's sampling results.

Table 4-3. Summary of Sampling Results

EOL	Sump 65	LOU Cooling Tower
	Monthly Average (ppm)	Monthly Average (ppm)
January	0.037	0.002
February	0.036	0.002
March	0.126	0.002
April	0.184	*
May	0.031	0.002
June	0.037	0.002
July	0.086	0.002
August	0.025	0.002
September	0.016	0.002
October	0.015	0.002
November	0.027	0.002
December	0.051	0.002

*No samples were collected in April 2022 due to the Light Olefins Unit Turnaround.

ADDITIONAL MATTERS REPORTING for BWON.

Subparagraph 101.j requires Motiva to report “any additional matters that Motiva believes should be brought to the attention to EPA.” Related to the requirements in Section VI, Affirmative Relief: Benzene Waste Operations NESHAP, Motiva has not identified any additional matters per this section following its reasonable inquiry process.

APPENDIX 4.1 MITIGATION PROJECTS REPORTING

Status of the Mitigation Projects

FHR completed the Mitigation Projects per Paragraph 101.g. and as described in Appendix 4.1 and Section IX of the CD. The final Mitigation Projects status update was submitted in the semiannual report dated January 30, 2018.

APPENDIX 5.1 AIR MONITORING SEMI-ANNUAL REPORT

Appendix 5.1 Air Monitoring Semi-Annual Reports

Air Monitoring Semi-Annual Reports are not applicable for this report. Per Appendix 5.1, FHR submitted Air Monitoring Semi-Annual Reports with the Semi-Annual Reports due under Paragraph 101 of the Decree for a period of two years from the DOE.

Consent Decree Semi-Annual Compliance Status Report Appendices

July 1, 2022 – December 31, 2022

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APPENDIX A

General Reporting Requirements

Motiva's response for this section has been provided in the main body of the Report. No additional information is presented in Appendix A.

APPENDIX B

Affirmative Relief Section IV: Flares Reporting

Motiva's response for this section has been provided in the main body of the Report. No additional information is presented in Appendix B.

APPENDIX C

Affirmative Relief Section V:

LDAR Reporting

APPENDIX C-1: Paragraphs 60 through 70 (Subsection V. G)

Motiva's responses to the requirements below cover the period from July 01, 2022, to December 31, 2022.

61. **Pro-Active Valve Tightening Work Practices Relating to each New Valve that is Installed and each Existing Valve that is Repacked.** *FHR shall undertake the following work practices with respect to each new valve that is installed (whether the new valve replaces an Existing Valve or is newly added to a Covered Process Unit), or each Existing Valve that is repacked:*
- a. Upon installation (or re-installation in the case of repacking), FHR shall ensure that the valve's packing gland nuts or their equivalent (e.g., pushers) are tightened to: (i) the manufacturer's recommended gland nut or packing torque; or (ii) any appropriate tightness that will minimize the potential for fugitive emission leaks of any magnitude. This practice shall be implemented prior to the valve's exposure (or re-exposure, in the case of repacking) to process fluids.*
 - b. Except for control valves, not less than 3 days nor more than 17 days after a new valve that has been installed or an Existing Valve that has been repacked first is exposed to process fluids at operating conditions, FHR shall ensure that the packing gland nuts or their equivalent (e.g., pushers) are or were tightened to: (i) the manufacturer's recommended gland nut or packing torque; or (ii) any appropriate tightness that will minimize the potential for fugitive emission leaks of any magnitude.*

During the Reporting Period, defined as starting on July 01, 2022 and ending December 31, 2022, component installation tightening and follow-up 3 and 17 day final torquing were performed as described above. Table C-1.1 below details the number of valves installed and repacked and the number of instances when an initial or final torque was not performed. (See Appendix C-5 for additional detail.)

Table C-1.1 Pro-active Valve Tightening

Total Valves Repacked/New Install	Repacked	New Install	Missed Initial or Final Torques
156	8	148	0

62. **Optional Pro Active Monitoring and Repair Practices relating to all Valves.**
- a. FHR may undertake Method 21 or FLIR monitoring: (i) during or immediately following any recheck done pursuant to Paragraph 61.b; and (ii) after a valve is placed back into service following a maintenance or equipment shutdown event that involves thermal cycling. This monitoring shall be in addition to, and not in lieu of, periodic monitoring. Any Screening Values recorded during Method 21 monitoring that exceed the applicable regulatory leak definitions shall*

be included in calculating the leak rate of the Covered Process Unit where the leak was found. Any leaks detected by FLIR monitoring either shall be followed up with Method 21 monitoring as soon as practicable but not more than 1 day after the FLIR monitoring or shall be recorded as a leak within FHR's electronic LDAR data management system and repaired consistent with Paragraph 52. Any Screening Values recorded during the follow up Method 21 monitoring that exceed the applicable regulatory leak definitions shall be included in calculating the leak rate of the Covered Process Unit where the leak was found.

Motiva has a process to ensure that FLIR monitoring is performed at predetermined intervals at the site. Additionally, Motiva's practice is to perform FLIR monitoring after an equipment shutdown involving thermal cycling. Any leaks detected with the FLIR camera are followed up with Method 21 or recorded into the electronic LDAR management system.

b. Detection of the following Screening Values during monitoring under Paragraph 62.a (regardless of whether it is initial Method 21 monitoring or follow up Method 21 monitoring after FLIR monitoring) shall be treated as follows: (i) for each Screening Value at or above 250 ppm, FHR shall comply with Paragraphs 52–56 and 58; (ii) for each Screening Value that also is at or above 500 ppm, FHR shall comply with all regulatory requirements related to that Screening Value; and (iii) FHR shall not be required to comply with Paragraph 64 for any Screening Value detected during monitoring conducted pursuant to this Paragraph.

(i) Motiva follows the steps outlined in Paragraphs 52-56 and 58 for leaks at or above 250 ppm. (ii) Additionally, Motiva follows all regulatory requirements upon finding leaks at or above the 500 ppm. (iii) Motiva will follow the requirements of Paragraph 64 when anything is found with the FLIR camera and a Method 21 monitoring will be performed.

- 63. Installing New Valves. Except as provided in Subparagraphs 63.a, 63.b, or Paragraph 65, FHR shall ensure that each new valve (other than a valve that serves as an OELCD) that it installs in each Covered Process Unit, and that, when installed, will be regulated under LDAR, is either a Low-E Valve or is fitted with Low-E Packing. This requirement applies to entirely new valves that are added to a Covered Process Unit and to Existing Valves that are replaced for whatever reason in a Covered Process Unit.**

Motiva has a process to ensure that valves procured and installed at the site meet the specified Low-E requirements. During this Reporting Period, valve subject to this Paragraph were replaced or repacked using Low-E Valves or Low-E Packing.

a. Paragraph 63 shall not apply in emergencies or exigent circumstances requiring immediate installation or replacement of a valve where a Low-E Valve or Low-E Packing is not available on a timely basis. Any such instance shall be reported in the next ELP compliance status report.

During this Reporting Period, there were no emergencies or exigent circumstances in which Low-E Valves or Low-E Packing were not available on a timely basis.

b. Paragraph 63 shall not apply to valves that are installed temporarily for a short-term purpose and then removed (e.g., valves connecting a portion of the Covered Process Unit to a testing device).

Motiva has a process to ensure that valves procured and installed at the site meet the specified Low-E requirements. Although Motiva's process is designed such that all valves procured and installed at the site are Low-E, the process does acknowledge the alternative to use of non-Low-E valves for certain temporary, short-term purposes.

64. Replacing or Repacking Valves that have Screening Values at or above 250 ppm with Low-E Valves or Low-E Packing

a. Paragraph 64.b–64.d are in addition to, and not in lieu of, Delay of Repair requirements in applicable LDAR regulations and in this ELP. Nothing in Subparagraphs 64.b–64.d is intended to modify or revise Delay of Repair requirements.

b. Existing Valves Required to Be Replaced or Repacked

i. All Covered Process Units Except LOU and OSBL Equipment. Except as provided in Paragraph 65, for each Existing Valve in all Covered Process Units except the LOU and OSBL Equipment that has a Screening Value at or above 250 ppm during any monitoring event, FHR shall replace or repack the Existing Valve with a Low E Valve or with Low-E Packing by no later than: (1) 30 days after the monitoring event that triggers the replacement or repacking requirement; (2) if the valve is removed from service within 30 days after the monitoring event that triggers the replacement or repacking, the date the valve is returned to service; or (3) if replacement or repacking cannot be undertaken pursuant to (1) or is not undertaken pursuant to (2), by no later than the first Turnaround after the triggering monitoring event. Valves identified with a Screening Value equal to or greater than 250 ppm during the time period that is ninety (90) days prior to the Turnaround shall be excluded from the requirement in (3). However, these valves shall be replaced or repacked during the subsequent Covered Process Unit

Turnaround, if such a Turnaround occurs during the pendency of this Consent Decree.

Motiva has a process whereby valves with a screening value equal to or greater than 250 ppm are replaced, repacked, or placed on a Turnaround list for the applicable Covered Process Unit within the time periods as defined in Subparagraph 64.b.i. See Table C-1.2 below for a summary of these valves.

ii. LOU

(1) Valves that can be replaced or repacked during LOU operation. Except as provided in Paragraph 65, for each Existing Valve in the LOU that has a Screening Value at or above 250 ppm during any monitoring event and that can be replaced or repacked during the operation of the LOU, FHR shall replace or repack the Existing Valve with a Low E Valve or with Low E Packing by no later than (1) 30 days after the monitoring event that triggers the replacement or repacking requirement; or (2) if the valve is removed from service within 30 days after the monitoring event that triggers the replacement or repacking, the date the valve is returned to service.

(2) Valves that cannot be replaced or repacked during LOU operation.

(a) Priority List. For valves that cannot be replaced or repacked during LOU operation, by no later than ninety days prior to the first LOU Turnaround that occurs after the Date of Entry, FHR shall generate a list of all Existing Valves within the LOU that had Screening Values equal to or greater than 250 ppm during any monitoring event that took place between the completion of the Fall 2012 LOU Turnaround and ninety days prior to the first LOU Turnaround that occurs after the Date of Entry ("Applicable Review Period"). The list shall include, at a minimum, the Screening Value recorded; the number of times the valve had a Screening Value equal to or greater than 250 ppm over the course of all monitoring events that took place during the Applicable Review Period; the size of the valve; and the service of the valve. For purposes of replacing and/or repacking valves on this list, FHR shall prioritize the list to the extent practical evaluating the following factors:

(1) the number of times the valve leaked at or above 250 ppm (the higher the number, the higher the priority); (2) the level of the Screening Value (the higher the Screening Value, the higher the priority); (3) the size of the valve (the bigger the valve, the higher the priority); (4) the toxicity of the pollutant(s) emitted (the more toxic, the higher the priority); and (5) the potential availability of Low E technology for the valve in question (the greater the likelihood of availability, the higher the priority). Once prioritized, this list shall be called the “Priority List.”

Motiva has a process whereby valves with a screening value equal to or greater than 250 ppm are replaced, repacked, or placed on a Turnaround list for the applicable Covered Process Unit. See Table C-1.2 below for a summary of these valves. Motiva completed the first LOU Turnaround after the Date of Entry subject to this paragraph during the first semiannual period of 2022.

(b) Replacements or Repackings during the First Turnaround after the Date of Entry. During the first LOU Turnaround after the Date of Entry, FHR shall first replace or repack valves on the Facility’s DOR list and valves that were drilled and tapped. After completing these replacements or repackings, FHR shall replace or repack, in the order of priority, the valves on the Priority List. Except as provided in Paragraph 65, FHR shall utilize Low E Valves or Low E Packing for all valves replaced or repacked during this Turnaround. FHR shall replace or repack no less than 800 valves during this Turnaround. FHR shall further pre-plan for the replacement of an additional 100 valves. If the duration of the Turnaround so allows, FHR shall use best efforts to continue to replace or repack some or all of the pre-planned valves until the completion of the Turnaround activities.

Motiva completed the first LOU Turnaround after the Date of Entry subject to this paragraph during the first semiannual period of 2022.

iii. OSBL.

Except as provided in Paragraph 65, for each Existing Valve in OSBL Equipment that has a Screening Value at or above 250 ppm during any monitoring event, FHR shall replace or repack the Existing Valve with a Low E Valve or with Low-E Packing by no later than: (1) 30 days after the monitoring event that triggers the replacement or repacking requirement; (2) if the valve is removed from service within 30 days after the monitoring event that triggers the replacement or repacking, the date the valve is returned to service; or (3) if replacement or repacking cannot be undertaken pursuant to (1) or is not undertaken pursuant to (2), by no later than the first Turnaround after the triggering monitoring event. Valves identified with a Screening Value equal to or greater than 250 ppm during the time period that is ninety (90) days prior to the Turnaround shall be excluded from the requirement in (3). However, these valves shall be replaced or repacked during the subsequent Covered Process Unit Turnaround, if such a Turnaround occurs during the pendency of this Consent Decree.

Motiva has a process whereby valves with a screening value equal to or greater than 250 ppm are replaced, repacked, or placed on a Turnaround list for the applicable Covered Process Unit within the time periods as defined in Subparagraph 64.b.i. See Table C-1.2 below for a summary of these valves.

c. Repair Requirements Pending Replacements or Repackings pursuant to Subparagraph 64.b.

i. Subsection V.E (Repairs) Requirements.

For each Existing Valve that has a Screening Value at or above 250 ppm, FHR shall not be required to comply with Subsection V.E (Repair) pending replacement or repacking pursuant to Subparagraph 64.b if FHR completes the replacement or repacking within 30 days of detecting the leak, or if the Existing Valve is on the Delay of Repair list. If FHR does not complete the replacement or repacking within 30 days, FHR shall comply with all applicable requirements of Subsection V.E (Repair).

Motiva has a process whereby valves with a screening value equal to or greater than 250 ppm are replaced or repacked within 30 days. If the valve cannot be isolated, it will be placed on the Turnaround list.

ii. Requirements of Applicable Regulations.

For each Existing Valve that has a Screening Value at or above 500 ppm, FHR shall comply with all repair and “delay of repair”

requirements of any applicable regulation pending replacement or repacking pursuant to Subparagraph 64.b.

Motiva will continue to comply with the requirements for valves with a screening value equal to or greater than 500 ppm. These valves are repaired and/or “delay of repair” requirements are followed.

d. Number of Turnarounds Required. FHR shall comply with the requirements of this Paragraph 64 for the following number of Turnarounds for the following Covered Process Units:

<u>Covered Process Unit</u>	<u>No. of Turnarounds</u>
<i>LOU and associated OSBL Equipment</i>	<i>1</i>
<i>GHU and associated OSBL Equipment</i>	<i>1</i>
<i>PHU and associated OSBL Equipment</i>	<i>1</i>
<i>UDEX and associated OSBL Equipment</i>	<i>2</i>
<i>Cyclohexane and associated OSBL Equipment</i>	<i>2</i>

During this Reporting Period, no Turnarounds were performed that would have required the priority list to be developed.

The UDEX was permanently shutdown by June 30, 2015. The PHU was permanently shutdown by March 31, 2016. Therefore, the turnaround requirements of this section are no longer applicable.

Based on activities performed the remaining number of Turnaround subject to Paragraph 64 for each Covered Process Units are as follows:

<u>Covered Process Unit</u>	<u>No. of Turnarounds</u>
<i>LOU and associated OSBL Equipment</i>	<i>0</i>
<i>GHU and associated OSBL Equipment</i>	<i>0</i>
<i>PHU and associated OSBL Equipment</i>	<i>0</i>
<i>UDEX and associated OSBL Equipment</i>	<i>0</i>
<i>Cyclohexane and associated OSBL Equipment</i>	<i>1</i>

Table C-1.2 Replacing or Repacking Valves

	Valves ≥ 250 ppm During this Reporting Period	Placed on Turnaround List	Repacked or Replaced	Turnaround Performed Valve Replacement
LOU	82	74	8	0
OSBL and Cover Process Unit other than LOU	18	15	3	0

For details of the identifying tag number, screening values (in ppm), type of actions, and dates involved for valves referenced in Table C-1.2, see Appendix C-5.

65. **Commercial Unavailability of a Low-E Valve or Low-E Packing.** *FHR shall not be required to utilize a Low-E Valve or Low-E Packing to replace or repack a valve if a Low-E Valve or Low-E Packing is commercially unavailable for the service and operating conditions of the valve. Factors and procedures for asserting commercial unavailability are set forth in Appendix 3.1. If FHR exercises the Commercial Unavailability exemption under this Paragraph for any valve, FHR shall:*
- a. Include the following in the applicable compliance status report required under Section VIII: (1) all documentation required by Section II.3 of Appendix 3.1; and (2) identify the commercially available valve or packing technology that comes closest to meeting the requirements for a Low-E Valve or Low-E Packing.*

During this Reporting Period, no non-Low-E valves or non-Low-E Packing were utilized relying upon the commercial unavailability exemption as described in Appendix 3.1 of the CD.

66. **Provisions Related to Low-E Valves and Low-E Packing.**
- a. “Low-E” Status Not Affected By Subsequent Leaks. If, during any monitoring after installation, a Low-E Valve or valve using Low-E Packing has a Screening Value at or above 250 ppm, the leak is not a violation of this Decree, does not invalidate the “Low-E” status or use of that type of valve or packing technology, and does not require replacing other, non-leaking valves or packing technology of the same type. b. Replacing or Repacking. The first time a Low-E Valve or a valve using Low-E Packing has a Screening Value at or above 250 ppm, FHR shall not be required to replace or repack it if FHR timely repairs the valve*

and reduces the Screening Value to below 250 ppm. If the Low-E Valve or a valve using Low-E Packing either cannot be repaired to below 250 ppm or if the valve subsequently has a Screening Value at or above 250 ppm, FHR shall replace or repack it pursuant to the requirements of Paragraph 64.

During this Reporting Period, leaks were documented from Low-E valves and Low-E Packing. Table C-1.3 presents any newly installed Low-E valves or new Low-E valve packing leaking for the first time at a screening value at or above 250 ppm giving an allowance of having a first repair prior to having a requirement to replace per Paragraph 64. See Table C-1.3 below for a summary of newly installed Low-E valves and Low-E packing that leaked for the first time, including those that were successfully repaired during this reporting period. (See Appendix C-5 for additional details.)

Table C-1.3 Low-E Valves and Low-E Packing Leaks

Low-E Valve or Packing that leaked during this reporting period	Successful First Repair of Low-E Valve/Packing	Low-E Valves/Packing which require following Paragraph 64
42	42	0

67. **Records of Low-E Valves and Low-E Packing.**
Prior to installing any Low-E Valves or Low-E Packing, or if not possible before installation, then as soon as possible thereafter, FHR shall secure from each manufacturer documentation that demonstrates that the proposed valve or packing technology meets the definition of “Low-E Valve” and/or “Low-E Packing.” FHR shall retain that documentation for the duration of this Consent Decree and make it available upon request.

Motiva has a process to secure documentation from each manufacturer of Low-E valves and/or Low-E packing that demonstrates that the valve or packing technology meets the specified Low-E requirements. This documentation is appropriately retained.

68. **Connector Replacement and Improvement Descriptions.**
a. For each of the following types of connectors, the following type of replacement or improvement shall apply:

<u>Connector Type</u>	<u>Replacement or Improvement Description</u>
<i>Flanged</i>	<i>Replacement or Improvement of the gasket or installation of tension washers</i>
<i>Threaded</i>	<i>Replacement of the connector with a like kind connector or other</i>
<i>Compression</i>	<i>Replacement of the connector with a like kind connector or other</i>
<i>CamLock</i>	<i>Replacement or improvement of the gasket or replacement or improvement of the CamLock</i>
<i>Quick Connect</i>	<i>Replacement or improvement of the gasket, if applicable, or replacement of the connector (with either a like kind connector or other), if there is no gasket</i>
<i>Any type</i>	<i>Elimination (e.g., through welding, pipe (including any of the above) replacement, etc.)</i>

During this Reporting Period, Motiva followed replacement or improvement of all the connector types listed above.

b. In cases where replacement in kind is utilized as the method for replacing or improving a connector (e.g., a Quick Connect replaces another Quick Connect), the provisions of Subparagraphs 68.b.i and 68.b.ii shall apply. i. If there are types, models or styles of a like-kind connector that are less likely to leak than the existing connector, and one or more of those types, models or styles are technically feasible to use (considering the service, operating conditions, and type of piping or tubing that the connector is in) and would not create a major safety, mechanical, product quality, regulatory or other issue, FHR shall select a like-kind connector from among such types, models or styles. ii. If Subparagraph 68.b.i does not apply, FHR may install a like-kind connector that is the same type, model or style as the existing connector.

Motiva has a process to replace the connector with the same type, model, or style as the existing connector. If the existing connector type, model, or style is not available, then Motiva's practice is to select a replacement which is less likely to leak than the existing connector.

- 69. Installing New or Like-Kind Connectors.**
When installing any new or replacement connector in a Covered Process Unit, FHR shall use best efforts to select a connector that is least likely to leak, using good engineering judgment, for the service, operating conditions, and type of piping or tubing that the connector is in.

During the Reporting Period, if the existing connector type, model, or style was not available, Motiva's practice was to select a replacement which was less likely to leak than the existing connector.

70.

Replacing or Improving Connectors.

a. Replacing or Improving Requirements. For each existing connector that, in any (2) times out of three (3) consecutive monitoring periods after the Date of Entry, has a Screening Value at or above 250 ppm, FHR shall replace or improve the connector in accordance with the applicable replacement or improvement described in Paragraph 68. FHR shall use best efforts to install a replacement or improvement that will be the least likely to leak, using good engineering judgment, for the service, operating conditions, and type of piping or tubing that the connector is in. FHR shall undertake the replacement or improvement within: (i) 30 days after the monitoring event that triggers the replacement or improvement requirement; or (ii) if the replacement or improvement cannot be done within 30 days, FHR shall undertake the replacement or improvement during the first Turnaround that follows the triggering monitoring event. The requirements of this Subparagraph are in addition to, and not in lieu of, Delay of Repair requirements in applicable LDAR regulations and in this ELP. Nothing in this Subparagraph is intended to modify or revise Delay of Repair requirements.

See Table C.1-4 below for a summary of connectors that had screening values at or above 250 ppm for two out of three consecutive monitoring periods. The table also identifies the connectors that have been repaired, replaced, or placed on the next Turnaround list (See Appendix C-5 for additional details.)

Table C.1-4 Replacing or Improving Connectors

Connectors with Screening Values \geq 250 for 2 out of 3 Consecutive Monitoring Periods	Number of Connectors Repaired or Replaced	Number of Connectors Placed on Next Turnaround List
32	30	2

b. Repair Requirements Pending Replacements or Improvements Pursuant to Subparagraph 70.a.

i. Subsection V.E (Repairs) Requirements. For each connector that has a Screening Valve at or above 250 ppm, FHR shall not be required to comply with Subsection V.E (Repairs) pending replacement or improvement pursuant to Subparagraph 70.a if FHR completes the replacement or improvement within 30 days of detecting the leak. If FHR does not complete the replacement or improvement within 30 days, or if, at the time of the leak detection, FHR reasonably can anticipate that it might not be able to complete the replacement or improvement within 30 days,

FHR shall comply with all applicable requirements of Subsection V.E (Repairs).

During this Reporting Period, Motiva performed repair attempts per Subsection V.E and connectors that did not meet the replacement or improvement requirements were placed on the next Turnaround list.

ii. Requirements of Applicable Regulations. For each connector that has a Screening Value at or above 500 ppm, FHR shall comply with all repair and DOR requirements of any applicable regulation pending replacement or improvement pursuant to Subparagraph 70.a.

During this Reporting Period, Motiva complied with the repair and DOR requirements of applicable regulations.

APPENDIX C-5: Valve and Connector Replacement/Improvement Report

Appendix C-5.1: Paragraph 61 Pro-Active Tightening

61. Pro-Active Valve Tightening Work Practices Relating to each New Valve that is Installed and Each Existing Valve that is Repacked

Valve Number	Repacked or New Install	Manufacturer's recommended gland nut or packing torque	Date Added	3-17 day retorque Completed	Explanation for Missed Re-Torque
315790	New Install	Completed	7/5/2022	YES	N/A
315791	New Install	Completed	7/5/2022	YES	N/A
315793	New Install	Completed	7/5/2022	YES	N/A
315794	New Install	Completed	7/5/2022	YES	N/A
315798	New Install	Completed	7/5/2022	YES	N/A
315799	New Install	Completed	7/5/2022	YES	N/A
315800	New Install	Completed	7/5/2022	YES	N/A
317910	New Install	Completed	7/5/2022	YES	N/A
317911	New Install	Completed	7/5/2022	YES	N/A
317912	New Install	Completed	7/5/2022	YES	N/A
317913	New Install	Completed	7/5/2022	YES	N/A
317914	New Install	Completed	7/5/2022	YES	N/A
317915	New Install	Completed	7/5/2022	YES	N/A
317916	New Install	Completed	7/5/2022	YES	N/A
317917	New Install	Completed	7/5/2022	YES	N/A
317918	New Install	Completed	7/5/2022	YES	N/A
317919	New Install	Completed	7/5/2022	YES	N/A
317921	New Install	Completed	7/5/2022	YES	N/A
317922	New Install	Completed	7/5/2022	YES	N/A
317923	New Install	Completed	7/5/2022	YES	N/A
317924	New Install	Completed	7/5/2022	YES	N/A
317925	New Install	Completed	7/5/2022	YES	N/A
317926	New Install	Completed	7/5/2022	YES	N/A
317930	New Install	Completed	7/5/2022	YES	N/A
317934	New Install	Completed	7/5/2022	YES	N/A
317935	New Install	Completed	7/5/2022	YES	N/A
317936	New Install	Completed	7/5/2022	YES	N/A
318030	New Install	Completed	7/5/2022	YES	N/A
203830	Repacked	Completed	8/15/2022	YES	N/A
317944	New Install	Completed	8/22/2022	YES	N/A
317945	New Install	Completed	8/22/2022	YES	N/A
E-0452	New Install	Completed	8/23/2022	YES	N/A
317947	New Install	Completed	9/7/2022	YES	N/A
317948	New Install	Completed	9/7/2022	YES	N/A
317949	New Install	Completed	9/7/2022	YES	N/A
317950	New Install	Completed	9/7/2022	YES	N/A
317951	New Install	Completed	9/7/2022	YES	N/A
317952	New Install	Completed	9/7/2022	YES	N/A
317953	New Install	Completed	9/7/2022	YES	N/A
317954	New Install	Completed	9/7/2022	YES	N/A
506597	New Install	Completed	9/8/2022	YES	N/A
900010	New Install	Completed	9/8/2022	YES	N/A
317956	New Install	Completed	9/19/2022	YES	N/A
317957	New Install	Completed	9/19/2022	YES	N/A

Motiva Enterprises LLC - Port Arthur Chemicals
Paragraph 61 Pro-Active Valve Tightening Work Practices Relating to each
New Valve that is Installed and Each Existing Valve that is Repacked

Valve Number	Repacked or New Install	Manufacturer's recommended gland nut or packing torque	Date Added	3-17 day retorque Completed	Explanation for Missed Re-Torque
317958	New Install	Completed	9/19/2022	YES	N/A
317959	New Install	Completed	9/26/2022	YES	N/A
317960	New Install	Completed	9/26/2022	YES	N/A
317961	New Install	Completed	10/3/2022	YES	N/A
317962	New Install	Completed	10/3/2022	YES	N/A
317963	New Install	Completed	10/3/2022	YES	N/A
317964	New Install	Completed	10/3/2022	YES	N/A
317965	New Install	Completed	10/3/2022	YES	N/A
317967	New Install	Completed	10/3/2022	YES	N/A
305748	Repacked	Completed	10/5/2022	YES	N/A
L-0061	New Install	Completed	10/11/2022	YES	N/A
317971	New Install	Completed	10/17/2022	YES	N/A
C-0464	New Install	Completed	10/19/2022	YES	N/A
317973	New Install	Completed	10/25/2022	YES	N/A
317974	New Install	Completed	10/25/2022	YES	N/A
317976	New Install	Completed	10/31/2022	YES	N/A
317977	New Install	Completed	10/31/2022	YES	N/A
317978	New Install	Completed	10/31/2022	YES	N/A
317979	New Install	Completed	10/31/2022	YES	N/A
317980	New Install	Completed	10/31/2022	YES	N/A
317981	New Install	Completed	10/31/2022	YES	N/A
317982	New Install	Completed	10/31/2022	YES	N/A
317983	New Install	Completed	10/31/2022	YES	N/A
317984	New Install	Completed	10/31/2022	YES	N/A
317985	New Install	Completed	10/31/2022	YES	N/A
11117	New Install	Completed	11/3/2022	YES	N/A
M-0505	Repacked	Completed	11/3/2022	YES	N/A
317986	New Install	Completed	11/4/2022	YES	N/A
317987	New Install	Completed	11/4/2022	YES	N/A
317988	New Install	Completed	11/4/2022	YES	N/A
K-1142	Repacked	Completed	11/7/2022	YES	N/A
317996	New Install	Completed	11/8/2022	YES	N/A
317990	New Install	Completed	11/15/2022	YES	N/A
317998	New Install	Completed	11/15/2022	YES	N/A
318501	New Install	Completed	11/22/2022	YES	N/A
504892	Repacked	Completed	11/28/2022	YES	N/A
318504	New Install	Completed	11/29/2022	YES	N/A
318505	New Install	Completed	11/29/2022	YES	N/A
318506	New Install	Completed	11/29/2022	YES	N/A
318507	New Install	Completed	11/29/2022	YES	N/A
318508	New Install	Completed	11/29/2022	YES	N/A
318509	New Install	Completed	11/29/2022	YES	N/A
318510	New Install	Completed	11/29/2022	YES	N/A
318511	New Install	Completed	11/29/2022	YES	N/A
318512	New Install	Completed	11/29/2022	YES	N/A
318513	New Install	Completed	11/29/2022	YES	N/A
318514	New Install	Completed	11/29/2022	YES	N/A
318515	New Install	Completed	11/29/2022	YES	N/A
318516	New Install	Completed	11/29/2022	YES	N/A

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Paragraph 61 Pro-Active Valve Tightening Work Practices Relating to each
New Valve that is Installed and Each Existing Valve that is Repacked

Valve Number	Repacked or New Install	Manufacturer's recommended gland nut or packing torque	Date Added	3-17 day retorque Completed	Explanation for Missed Re-Torque
318517	New Install	Completed	11/29/2022	YES	N/A
318518	New Install	Completed	11/29/2022	YES	N/A
318519	New Install	Completed	11/29/2022	YES	N/A
318520	New Install	Completed	11/29/2022	YES	N/A
318521	New Install	Completed	11/29/2022	YES	N/A
318522	New Install	Completed	11/29/2022	YES	N/A
318523	New Install	Completed	11/29/2022	YES	N/A
318524	New Install	Completed	11/29/2022	YES	N/A
318525	New Install	Completed	11/29/2022	YES	N/A
318527	New Install	Completed	11/29/2022	YES	N/A
318528	New Install	Completed	11/29/2022	YES	N/A
318530	New Install	Completed	11/29/2022	YES	N/A
318531	New Install	Completed	11/29/2022	YES	N/A
318536	New Install	Completed	11/29/2022	YES	N/A
318542	New Install	Completed	12/7/2022	YES	N/A
318543	New Install	Completed	12/7/2022	YES	N/A
318544	New Install	Completed	12/7/2022	YES	N/A
318545	New Install	Completed	12/7/2022	YES	N/A
318546	New Install	Completed	12/7/2022	YES	N/A
318549	New Install	Completed	12/7/2022	YES	N/A
318551	New Install	Completed	12/7/2022	YES	N/A
318553	New Install	Completed	12/9/2022	YES	N/A
318554	New Install	Completed	12/9/2022	YES	N/A
318555	New Install	Completed	12/9/2022	YES	N/A
318556	New Install	Completed	12/9/2022	YES	N/A
318557	New Install	Completed	12/9/2022	YES	N/A
318558	New Install	Completed	12/9/2022	YES	N/A
318559	New Install	Completed	12/9/2022	YES	N/A
318560	New Install	Completed	12/9/2022	YES	N/A
318561	New Install	Completed	12/9/2022	YES	N/A
318562	New Install	Completed	12/9/2022	YES	N/A
318563	New Install	Completed	12/9/2022	YES	N/A
318565	New Install	Completed	12/9/2022	YES	N/A
318566	New Install	Completed	12/9/2022	YES	N/A
318567	New Install	Completed	12/9/2022	YES	N/A
318568	New Install	Completed	12/9/2022	YES	N/A
318569	New Install	Completed	12/9/2022	YES	N/A
318570	New Install	Completed	12/9/2022	YES	N/A
318571	New Install	Completed	12/9/2022	YES	N/A
318572	New Install	Completed	12/9/2022	YES	N/A
318573	New Install	Completed	12/9/2022	YES	N/A
318574	New Install	Completed	12/9/2022	YES	N/A
318575	New Install	Completed	12/9/2022	YES	N/A
318576	New Install	Completed	12/9/2022	YES	N/A
318577	New Install	Completed	12/9/2022	YES	N/A
318578	New Install	Completed	12/9/2022	YES	N/A
318579	New Install	Completed	12/9/2022	YES	N/A
318580	New Install	Completed	12/9/2022	YES	N/A
318581	New Install	Completed	12/9/2022	YES	N/A

Motiva Enterprises LLC - Port Arthur Chemicals
Paragraph 61 Pro-Active Valve Tightening Work Practices Relating to each
New Valve that is Installed and Each Existing Valve that is Repacked

Valve Number	Repacked or New Install	Manufacturer's recommended gland nut or packing torque	Date Added	3-17 day retorque Completed	Explanation for Missed Re-Torque
318582	New Install	Completed	12/9/2022	YES	N/A
318591	New Install	Completed	12/9/2022	YES	N/A
318588	New Install	Completed	12/9/2022	YES	N/A
318587	New Install	Completed	12/9/2022	YES	N/A
318586	New Install	Completed	12/9/2022	YES	N/A
318585	New Install	Completed	12/9/2022	YES	N/A
318584	New Install	Completed	12/9/2022	YES	N/A
318583	New Install	Completed	12/9/2022	YES	N/A
318594	New Install	Completed	12/12/2022	YES	N/A
318592	New Install	Completed	12/12/2022	YES	N/A
318595	Repacked	Completed	12/21/2022	YES	N/A
318596	Repacked	Completed	12/21/2022	YES	N/A
318597	Repacked	Completed	12/21/2022	YES	N/A
318598	New Install	Completed	12/21/2022	YES	N/A

Appendix C-5.2: Paragraph 64 Replacing or Repacking
Valves that have Screening Valves at or above 250 PPM
with Low-E Valves or Low-E Packing

64. Replacing or Repacking Valves that have Screening Values at or above 250 ppm with Low-E Valves or Low-E Packing

Valve Number	Screening Value**	Follow-up value	Repacked, New Install, or Will be on turnaround list	Covered Process Unit	Date Replaced/Rep acked (N/A if not completed)
0153	685	181	Will be on turnaround list	AU-CYCLO	N/A
0382D	624	236	Will be on turnaround list	AU-CYCLO	N/A
100810	755	8	Will be on turnaround list	LOU-CAU	N/A
10672	1308	209	Will be on turnaround list	OFFSITES H	N/A
10675	1240	96	Will be on turnaround list	OSBL MOTIVA	N/A
10757	2205	178	Will be on turnaround list	OFFSITES H	N/A
11117	1135	179	New Install	OSBL MOTIVA	11/3/2022
11146	2534	121	Will be on turnaround list	OSBL MOTIVA	N/A
200999	1802	4	Will be on turnaround list	LOU	N/A
201363	2131	25	Will be on turnaround list	LOU	N/A
201988	3518	11	Will be on turnaround list	LOU-FG	N/A
202371	996	188	Will be on turnaround list	LOU	N/A
203053	596	106	Will be on turnaround list	LOU	N/A
203119	14650	92	Will be on turnaround list	LOU	N/A
203215	357	174	Will be on turnaround list	LOU-GHU	N/A
203374	7633	2195	Will be on turnaround list	LOU	N/A
203386	3264	61	Will be on turnaround list	LOU	N/A
203398	427	153	Will be on turnaround list	LOU	N/A
203502	610	211	Will be on turnaround list	PDU-PIPE	N/A
203567	280	204	Will be on turnaround list	LOU	N/A
203714	41226	52	Will be on turnaround list	LOU	N/A
203830	4022	10	New Install	LOU	8/15/2022
203912	11193	6	Will be on turnaround list	LOU	N/A
203913	529	155	Will be on turnaround list	LOU	N/A
204473	15225	107	Will be on turnaround list	OFFSITES UU	N/A
300520	549	188	Will be on turnaround list	LOU	N/A
301096	952	241	Will be on turnaround list	PDU-PIPE	N/A
305748	278	12	Repacked	AU-CYCLO	10/5/2022
306805	2083	208	Will be on turnaround list	LOU	N/A
307711	2120	114	Will be on turnaround list	LOU	N/A
307809	4158	49	Will be on turnaround list	LOU	N/A
307810	1002	10	Will be on turnaround list	LOU	N/A
308335	559	80	Will be on turnaround list	LOU-FG	N/A
308563	1018	176	Will be on turnaround list	PDU	N/A

Motiva Enterprises LLC - Port Arthur Chemicals
Paragraph 64 Replacing or Repacking Valves that have Screening Values at or
above 250 ppm with Low-E Valves or Low-E Packing

Valve Number	Screening Value**	Follow-up value	Repacked, New Install, or Will be on turnaround list	Covered Process Unit	Date Replaced/Repacked (N/A if not completed)
309019	18921	154	Will be on turnaround list	LOU	N/A
309396	1788	2146	Will be on turnaround list	LOU	N/A
309502	732	188	Will be on turnaround list	LOU	N/A
313094	2060	337	Will be on turnaround list	LOU	N/A
313844	1360	237	Will be on turnaround list	LOU	N/A
315045	17223	835	Will be on turnaround list	LOU	N/A
315047	600	346	Will be on turnaround list	LOU	N/A
315777	866	2763	Will be on turnaround list	LOU	N/A
316296	3425	2	Will be on turnaround list	LOU	N/A
400310	11358	291	Will be on turnaround list	LOU	N/A
401535	540	79	Will be on turnaround list	LOU	N/A
500024	345	26	Will be on turnaround list	LOU-GHU	N/A
504892	533	209	Repacked	LOU	11/28/2022
504947	1486	122	Will be on turnaround list	LOU	N/A
506597	370	140	New Install	LOU	9/8/2022
532906	2778	2154	Will be on turnaround list	LOU	N/A
704775	550	140	Will be on turnaround list	LOU	N/A
751032	1148	148	Will be on turnaround list	LOU	N/A
837893	1306	3	Will be on turnaround list	LOU-FG	N/A
900010	368	12	New Install	LOU-GHU	9/8/2022
914091	315	5	Will be on turnaround list	LOU	N/A
914148	2044	3	Will be on turnaround list	LOU	N/A
917223	313	60	Will be on turnaround list	LOU	N/A
918225	32238	35861	Will be on turnaround list	LOU	N/A
918245	264	213	Will be on turnaround list	LOU	N/A
929509	414	80	Will be on turnaround list	LOU	N/A
B-21955	1318	7	Will be on turnaround list	LOU-FG	N/A
C-0277	2538	237	Will be on turnaround list	LOU	N/A
C-0464	903	24	New Install	LOU	10/19/2022
E-0452	955	7	New Install	LOU	8/23/2022
E-12242	1129	982	Will be on turnaround list	LOU-FG	N/A
F-0630	765	11	Will be on turnaround list	LOU	N/A
G-0730F	808	20	Will be on turnaround list	LOU	N/A
G-1164	813	187	Will be on turnaround list	LOU	N/A
G-1165	463	111	Will be on turnaround list	LOU	N/A
G-1166	342	94	Will be on turnaround list	LOU	N/A
G-1173	778	97	Will be on turnaround list	LOU	N/A
G-1174	505	9	Will be on turnaround list	LOU	N/A
G-12551	974	151	Will be on turnaround list	LOU-FG	N/A
G-12785	1202	141	Will be on turnaround list	LOU-FG	N/A
H-0054	325	221	Will be on turnaround list	LOU	N/A
H-0098	30594	87	Will be on turnaround list	LOU	N/A
H-0129	1186	8	Will be on turnaround list	LOU	N/A
H-0326	1287	21	Will be on turnaround list	LOU	N/A

Motiva Enterprises LLC - Port Arthur Chemicals
Paragraph 64 Replacing or Repacking Valves that have Screening Values at or
above 250 ppm with Low-E Valves or Low-E Packing

Valve Number	Screening Value**	Follow-up value	Repacked, New Install, or Will be on turnaround list	Covered Process Unit	Date Replaced/Repacked (N/A if not completed)
H-0331	2644	6	Will be on turnaround list	LOU	N/A
H-0802	532	87	Will be on turnaround list	LOU	N/A
H-1542	621	98	Will be on turnaround list	LOU-GHU	N/A
J-1654	555	226	Will be on turnaround list	LOU-GHU	N/A
J-2300	634	66	Will be on turnaround list	LOU-GHU	N/A
K-0051	956	194	Will be on turnaround list	LOU	N/A
K-0576	616	49	Will be on turnaround list	LOU	N/A
K-0793B	1755	6	Will be on turnaround list	LOU	N/A
K-1142	368	161	Repacked	LOU	11/7/2022
K-1407	1291	20	Will be on turnaround list	LOU	N/A
L-0061	1400	17	New Install	LOU	10/11/2022
L-0199	23477	43	Will be on turnaround list	LOU	N/A
L-1151	630	5	Will be on turnaround list	LOU	N/A
L-1244	641	4	Will be on turnaround list	LOU	N/A
M-0119	496	186	Will be on turnaround list	LOU	N/A
M-0136	255	10	Will be on turnaround list	LOU	N/A
M-0277	506	45	Will be on turnaround list	LOU	N/A
M-0505	1368	7	Repacked	LOU	11/3/2022
M-0589	27057	16	Will be on turnaround list	LOU	N/A
P-0110	363	28	Will be on turnaround list	PDU	N/A
P-1053	371	192	Will be on turnaround list	PDU	N/A
P-1354	2514	13	Will be on turnaround list	OFFSITES UU	N/A

Appendix C-5.3: Paragraph 66 Provisions Related to Low-E Valves on Low-E Packing

66. Provisions Related to Valves and Packing

Valve Number	Date of Installation/ Repack	Valve or Packing	Screening Value	Subsequent Screening Value	First Time Repair Completed (<250 ppm reading) or Placed on DOR	Any subsequent Repair Attempt beyond first attempt will require following Paragraph 64 (P64)
11085	6/17/2018	Packing	580	5	10/10/2022	
11088	11/14/2019	Packing	408	83	10/10/2022	
203395	3/21/2022	Packing	301.00	120.00	10/24/2022	
203605	3/26/2022	Packing	368.00	82.00	8/4/2022	
203607	3/28/2022	Packing	635	57	10/27/2022	
203765	3/20/2022	Packing	416	113	11/28/2022	
203906	3/25/2022	Packing	2,430.00	105.00	8/10/2022	
203914	3/26/2022	Packing	1,241.00	34.00	8/4/2022	
203981	3/25/2022	Packing	447	194	10/20/2022	
203991	3/21/2022	Packing	260	150	9/22/2022	
204066	3/25/2022	Packing	334	206	8/4/2022	
204278	3/21/2022	Packing	1484	35	10/24/2022	
204363	3/29/2022	Packing	24,206.00	140.00	8/8/2022	
301517	3/26/2022	Packing	516	180	10/17/2022	
301706	8/28/2015	Valve	2988	158	7/12/2022	
301707	4/6/2022	Packing	12000	225	7/12/2022	
301741	8/28/2015	Valve	2,912.00	44.00	7/12/2022	
301755	8/28/2015	Valve	558	12	7/12/2022	
301938	4/2/2022	Packing	26,196.00	165.00	11/9/2022	
301943	4/2/2022	Packing	15003	214	11/9/2022	
306528	3/21/2022	Packing	4219	176	10/20/2022	
307713	3/21/2022	Packing	2355	60	10/27/2022	
309849	3/18/2022	Valve	801.00	240.00	11/17/2022	
313286	4/17/2018	Valve	28,565.00	2.00	7/28/2022	
314606	5/25/2018	Valve	2,086.00	120.00	8/22/2022	
316665	4/2/2022	Valve	9778	179	12/12/2022	
317145	4/3/2022	Valve	361	8	10/25/2022	
401402	3/28/2022	Valve	3336	13	12/21/2022	
500188	4/2/2022	Valve	350.00	95.00	11/9/2022	
501312	3/28/2022	Packing	1,187.00	120.00	10/26/2022	
602406	11/14/2016	Packing	302.00	152.00	12/8/2022	
701942	9/23/2015	Valve	11,733.00	239.00	10/20/2022	
703448	9/18/2015	Valve	27,763.00	6.00	12/19/2022	
834801	3/21/2022	Packing	462.00	238.00	10/24/2022	
917890	3/22/2022	Packing	325.00	46.00	11/17/2022	
918218	3/20/2022	Packing	814.00	222.00	11/29/2022	
B-19647	4/22/2017	Valve	398.00	4.00	11/2/2022	

Motiva Enterprises LLC - Port Arthur Chemicals
Paragraph 66 Provisions Related to Low-E Valves and Low-E Packing

Valve Number	Date of Installation/ Repack	Valve or Packing	Screening Value	Subsequent Screening Value	First Time Repair Completed (<250 ppm reading) or Placed on DOR	Any subsequent Repair Attempt beyond first attempt will require following Paragraph 64 (P64)
F-1657	4/7/2022	Packing	369.00	122.00	12/7/2022	
H-0826	4/6/2022	Valve	416.00	32.00	8/29/2022	
K-1023	3/30/2022	Packing	365.00	56.00	10/11/2022	
K-1040	3/27/2022	Packing	378.00	91.00	10/12/2022	
K-1119	4/11/2022	Valve	430.00	11.00	10/11/2022	

Appendix C-5.4: Paragraph 70 Replacing or Improving Connectors

70. Replacing or Improving Connectors

Connector Number	Screening Value at or above 250 ppm 1st leak within 3 consecutive monitoring Period	Screening Value at or above 250 ppm 2nd leak within 3 consecutive monitoring Period	Repaired, Replacement, Improvement, or DOR	Covered Process Unit	Date Repaired/ Replaced
201024.1	454	525	REPLACED	LOU	10/19/2022
201630	9008	21215	REPLACED	LOU	10/20/2022
203762.2	57253	54560	REPLACED	LOU	10/25/2022
204152.2	639	3000	DOR	LOU-GHU	N/A
204458.2	9940	2000	REPLACED	LOU	10/4/2022
300054.1	8060	28179	REPLACED	LOU	10/18/2022
301055.2	521	550	REPLACED	AU-CYCLO	9/22/2022
308962	19170	2598	REPLACED	LOU-FG	11/30/2022
309112.1	1244	32898	REPLACED	LOU	11/16/2022
309508.1	1408	25589	REPLACED	LOU	11/28/2022
310956.1	1830	2692	DOR	PDU	N/A
314947.2	2157	4169	REPLACED	LOU-GHU	10/11/2022
400686.1	6755	38170	REPLACED	LOU	10/10/2022
401413.1	10000	784	REPLACED	LOU	10/27/2022
401612.1	3000	29482	REPLACED	LOU	10/24/2022
531638.1	3000	440	REPLACED	LOU	9/15/2022
533493.1	753	1200	REPLACED	LOU	8/4/2022
703484.1	500	251	REPLACED	LOU	11/8/2022
834807.2	450	430	REPLACED	LOU	11/9/2022
911216.1	504	2214	REPLACED	AU-CYCLO	9/22/2022
915173.1	761	930	REPLACED	LOU	10/31/2022
918869.2	542	3449	REPLACED	LOU	11/7/2022
926109.1	739	289	REPLACED	LOU	11/22/2022
B-16743	2299	1889	REPLACED	LOU-FG	12/8/2022
G-1219.1	7027	2948	REPLACED	LOU	11/22/2022
H-0147.1	8376	22165	REPLACED	LOU	10/11/2022
K-0576.2	2603	2564	REPLACED	LOU	10/13/2022
L-0066-S1	2201	13000	REPLACED	LOU	8/2/2022
L-0140B.1	29773	49265	REPLACED	LOU	10/24/2022
L-0207.1	55230	23000	REPLACED	LOU	8/3/2022
L-1123.1	1173	13296	REPLACED	LOU	10/24/2022
M-0459.1	3137	4556	REPLACED	LOU	10/17/2022
** Connectors in some units are monitored on an annual vs. semi-annual basis.					

APPENDIX D

Affirmative Relief Section VI:

BWON Reporting

APPENDIX D-1: Earth Analytical Sciences Lab Audit

October 19, 2021

VIA ELECTRONIC MAIL ONLY

Martha Worsham
Environmental Specialist
Motiva Port Arthur Chemicals
4241 Savannah Ave.
Port Arthur, Texas 77640

Dear Ms. Worsham:

Enclosed is the final laboratory audit report for the benzene waste National Emissions Standards for Hazardous Air Pollutants (NESHAP) audit that was performed on September 8, 2021, at the Earth Analytical Sciences, Inc. (Earth Analytical) facility in Beaumont, Texas. Lester J. Dupes, CEAC, CQA, of Environmental Standards, Inc. (Environmental Standards) conducted the audit for the following purposes:

- To satisfy the biennial audit requirement within the existing Motiva Port Arthur Chemicals (Motiva) Consent Decree to evaluate Earth Analytical's ability to analyze benzene waste NESHAP compliance samples.
- To assess the Earth Analytical facility with regard to capabilities and capacity relative to the analytical service needs of Motiva environmental professionals.
- To provide Earth Analytical with feedback on laboratory operating issues relative to three general areas – method compliance, laboratory quality systems, and good laboratory practices.

The audit focused on potential analytical services (benzene waste NESHAP) that may be provided for the Motiva refinery in Port Arthur, Texas. This analytical capability, as well as the associated peripheral non-analytical areas, were included in the audit.

During the audit at Earth Analytical, brief interviews were conducted with the Analysts and Section Managers to gain an insight of the laboratory personnel's understanding of the analytical methods and standard operating procedures. By the very nature of an audit, some critical statements that should not be regarded as an overall indication of the laboratory's qualifications, are presented in this report. These statements should be regarded as representations of areas for laboratory operational improvement and/or areas deviating from the analytical methods or laboratory standard operating procedures.

Audit Report Prepared by,



Lester J. Dupes, CEAC, CQA
Senior Quality Assurance Chemist

Audit Report Reviewed by,



David A. Gratson, CEAC
Senior Technical Chemist/
Project Manager

Audit Report Reviewed and Approved by,



Rock J. Vitale, CEAC
Technical Director of Chemistry/
Principal

ENVIRONMENTAL STANDARDS, INC.

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LJD/DAG/RJV:nd
Enc.

1.0 Audit Information

Business Name:	Motiva Port Arthur Chemicals (Motiva)	Audit Site Description:	Earth Analytical Sciences, Inc. – contract laboratory for Motiva
Business Unit:	Motiva Port Arthur Refinery	Location:	Port Arthur, Texas
Audit Type:	EHS	Audit Subtype:	Focused Environmental: BWON Contract Audit
Fieldwork Date:	September 8, 2021	Date of Last Audit Report:	October 19, 2019
Audit Managed By:	Martha Worsham	Audit Performed By:	Environmental Standards, Inc.

2.0 Executive Summary

Mr. Lester J. Dupes, CEAC, CQA, of Environmental Standards, Inc. (Environmental Standards) conducted a contract benzene waste operations NESHAP (BWON) laboratory compliance audit of the Earth Analytical Sciences, Inc. (Earth Analytical) Beaumont, Texas laboratory facility, which is located at 4825 Ward Dr., Beaumont, Texas.

Earth Analytical followed established SW-846 Method 8260C (BTEX) method for analyzing BWON NESHAP samples.

A pre-audit meeting was held with laboratory management and quality assurance (QA) personnel to discuss the scope of the audit, to identify a schedule for the implementation of the on-site audit and records review, and to discuss any concerns held by either the laboratory personnel or the client.

The on-site audit included a review of sample receipt and storage, bottleware preparation, waste handling, and the gas chromatography/mass spectroscopy (GC/MS) analytical area. Practices and procedures were observed, and interviews with the Analysts and Technicians were conducted to obtain insight into laboratory performance.

Requested records and representative data packages were also reviewed by the Auditor.

The laboratory recently hired two new Chemists in the volatile analysis area within the last several months, and both are recent college graduates. As such, these two personnel are in initial training and were not familiar with method details or standard operating procedure (SOP) requirements during questioning by the Auditor. They had not completed initial demonstration of capability to perform independent analysis. Both Chemists were under the direct supervision of the Volatiles Department Manager. The Department Manager was responsible for running volatile organic samples by GC/MS while training these personnel. The laboratory should make it a priority to fully train these Analysts in a timely fashion so they can be backup Analysts for volatile organic analyses by Method 8260C.

Four low-risk findings were noted in the sample receiving and volatile analysis areas.

Earth Analytical employs a Promium Element laboratory information management system (LIMS) for sample login, data/records management, report generation and query functions, and invoicing. Electronic data backup and storage were evaluated and deemed adequate.

All issues were discussed with laboratory management and QA personnel during a post-audit debrief meeting held after the audit. Management and QA personnel indicated that they understood the findings and would implement documented corrective actions to address each finding.

3.0 Audit Findings

Risk Category	Exceptions	Observations	Total*
High	0	0	0
Medium	1	0	1
Low	4	0	4
Totals	5	0	5

*Includes (insert number – including 0) repeat findings

4.0 Site Background / Description

Earth Analytical is a contract environmental laboratory that provides environmental analytical services for private and public-sector clients. The operating facility includes a 10,000 square foot operations area that is staffed by approximately 45 technical personnel.

The facility consists of two buildings that house the offices, laboratories, and utility areas. An adequate parking lot and driveway are available for parking and deliveries. The West building contains the volatile organics preparation and analysis laboratories, which are segregated from other sample-preparation areas within the two buildings. The volatile sample preparation and analysis areas were noted as being clean with sufficient space for the Analysts.

Facility security appeared adequate. During the audit, all exterior and critical interior doors were kept locked at all times, with the exception of the sample receiving door during business hours. Laboratory personnel used key cards to access each of the laboratory buildings. Once admitted to the main entrance, visitors were asked to sign in and out. Escorts were provided for visitors at all times.

5.0 Objective and Scope

5.1 Objective

The objective of this audit was to evaluate the compliance status of representative facility operations to ensure that proper analytical and quality assurance/quality control (QA/QC) procedures were followed for BWON samples. The test method requested for investigation in the audit included benzene by SW-846 Method 8260C.

5.2 Scope/Approach of Work

Evaluate laboratory operations to ensure that proper analytical and QA procedures are followed in the performance of test methods for BWON samples contracted by Motiva.

- Interview key personnel including Laboratory Manager, Department Supervisor, Analysts, and sample receipt staff.
- Perform a visual inspection of the facility and all equipment, as well as firsthand observation of all segments of the BWON sample route including: bottleware preparation, sample receipt, storage, preparation, analysis, reporting, archival, and disposal.
- Evaluate the capability, methods, procedures, files, records, and QC data relevant to benzene analysis.
- Examine sample records, test reports, and supporting QC data for samples analyzed during the evaluation timeframe.
- Review the Quality Assurance Manual and quality system documentation.
- Evaluate laboratory compliance with its existing Quality Assurance Manual, SOPs, and other appropriate management systems.
- Review and observe sampling handling procedures, record management practices, and LIMSs.
- Confirm laboratory compliance with analytical method requirements stated in 40 CFR Part 61.355 (c)(3)(iv).
- Evaluate status of laboratory certifications and accreditations.
- Review laboratory performance on applicable proficiency testing programs and internal/external audits.

Records/Documents Reviewed

Earth Analytical documents reviewed included the:

- Quality Assurance Manual;
- Master list of SOPs;
- Current instrumentation listing;
- SOPs for GC/MS volatile organics analysis;
- SOPs for sample receipt and handling;
- SOPs for bottleware preparation and shipping;
- SOP for waste handling and disposal;
- Biographies or resumes of key personnel;
- Method detection limit (MDL) summaries;
- Copy of last state/NELAC audit and responses/corrective actions;
- Latest set of performance evaluation (PE) analyses and results;
- Analyst training files;
- QA metrology and calibration records;
- Current certifications;
- Organizational chart; and
- Two recent data packages for benzene.

Earth Analytical personnel interviewed included:

- David White – Laboratory Director
- Brian D. Sparkman - Volatile Organics & BNA Laboratory Manager / Senior VOC Analyst
- Skyllar Addington – Organics Analyst in Training, GC/MS
- Jenna James – Organics Analyst in Training, GC/MS
- Josh Thomas – Sample Login/Bottleware

Limitations:

Except for the concerns as noted in the findings, Earth Analytical is meeting the requirements applicable to BWON samples. Importantly, audits are not exhaustive by nature and should be considered as representative of a snapshot in time of the facility's compliance program. The audit activities relied upon a representative review of available documents, select interviews, interviewee responses, as well as Auditor observation of activities occurring while the Auditor was on site.

Where infeasible to review all available information, the Auditor employed representative sampling techniques to evaluate certain activities, documents, or areas. The document review was further limited to the period from the date of the site visit back to either the most recent audit or 2 years, whichever was more recent.

5.3 Out of Scope

Not applicable.

5.4 Information Relevant to this Audit

Not applicable.

6.0 Audit Team and Stakeholders

Audit Manager:	Martha Worsham	Business Representative:	David White – Earth Analytical Sciences
Audit Team Member:	Lester J. Dupes – Environmental Standards	Business Stakeholders:	

7.0 Distribution

To:

Martha Worsham - Environmental Specialist - Motiva Port Arthur Chemicals

David White - Laboratory Director - Earth Analytical Sciences, Inc

cc:

Audit Results Definitions

Exception – A finding that is a departure from applicable statutes, regulations, legally prescribed standards or codes, contractual requirements, or company standards, policies and procedures. There are two subtypes of Exceptions.

- **Legal Exception** – A type of Exception that is a non-compliance with, or failure to demonstrate compliance with, applicable statutes, regulations, or legally prescribed standards or codes.
- **Compliance System Exception** – A type of Exception that is a departure from compliance standards, policies and procedures, or contractual requirements.

Observation – Any conditions, circumstances, practices or activities where, although there are no Exceptions, there is a potential for departures from applicable statutes, regulations, legally prescribed standards or codes, contractual requirements, or company standards, policies or procedures.

- Observations will also be given a subtype of Legal or Compliance System.

Repeat Finding – A finding, where the approved action date has passed, and that in the judgment of the Lead Auditor in consultation with Legal Counsel and appropriate and compliance personnel:

- is identical to a previously reported finding; or
- has substantially similar root causes that indicate a systemic failure; or
- the corrective action taken did not properly address the underlying issue.

Knowledge Share Comments – Knowledge Share Comments include information that an Auditor shares with the business to further enhance an effective process, recognize excellence, or observations made during the audit that would not otherwise be included in the Audit Report. Knowledge Share Comments' corrective actions need not be tracked or monitored in the audit finding tracking system. There are two types of Knowledge Share Comments:

- **Leading Practice** – An identified effective process which could be considered a leading practice for this particular business, site, and situation.
- **Opportunity** – An identified situation where controls, processes, or procedures could be strengthened to improve controls or add value to the business.

Risk Category Definitions

High Risk Category – The finding identifies a situation that presents an imminent endangerment to human health, risk of release, threat to the environment or threat to the ongoing operations of the facility.

Medium Risk Category – The finding identifies a situation that requires action, such as a report to a regulatory agency, but not necessarily immediate action, to improve risk control measures, and does not pose an imminent threat of release or endangerment.

Low Risk Category – The finding identifies a situation that is primarily administrative or easily corrected on site and is not a High or Medium Category.

8.0 Detailed Findings Table

Seq#	Finding	Category	Citation/Standard	Requirement Description	New (N)/ Repeat (R)	Legal (L)/ Comp. Syst. (C)
	<p>Knowledge Share Comment: The Earth Analytical laboratory sampling personnel collected samples at the Motiva Refinery for BWON analysis. A third-party contractor collected samples at the Motiva Refinery. The laboratory maintained a detailed sampling SOP (WI-FS2 Revision 3)</p> <p>Benzene Waste Operations NESHA. The sampling procedures were not reviewed as part of this audit scope.</p> <p>In addition, the laboratory maintained an SOP of courier services SOP-FS1 Revision 3 Sample Transportation (Courier Service) for transfer of samples from client location.</p>					
	<p>Knowledge Share Comment: The laboratory collected aqueous samples for volatiles analysis in unpreserved sample vials. According to laboratory personnel, unpreserved samples reduce wear on the GC/MS instrumentation. This reduced the sample holding time to 7 days for unpreserved samples from a 14-day preserved holding time from the date of sample collection. The Auditor noted in sample login that samples were designated with a 7-day holding time, which was confirmed by the volatiles-analysis department personnel.</p>					
	<p>Knowledge Share Comment: Based on a prior finding regarding the tracking of volatile vials, the Auditor reviewed the current lot numbers of vials in sample bottle storage area. The Auditor noted all lot numbers were properly recorded in the Consumables Tracking Logbook and manufacturers' certificates maintained and traceable to assigned logbook numbers. Volatile vials were stored in a separate room from the analysis and preparation areas.</p>					

Seq#	Finding	Category	Citation/Standard	Requirement Description	New (N)/ Repeat (R)	Legal (L)/ Comp. Syst. (C)
	Exception: The laboratory maintained a detailed sampling SOP (WI-FS2 Revision 3) Benzene Waste Operations NESHA. Section C5.8 states, "Three sample cycles make up one sample event, at least one hour apart but an equal time." A review of the Chain-of-Custody (COC) for Motiva project numbers 1G26036 and 1H19028 indicated the samples were collected only 1 minute apart. According to regulations in 40 CFR § 61.355 the 1-hour time-period between samples appears to only be applicable to performance testing. Monitoring requirements stated in 40 CFR § 61.354 indicated that only three representative samples be collected with no time separation requirements.	Med	2016 TNI Standard Volume 1 Module 2 Section 4.2.8.5	Laboratories shall maintain SOPs that accurately reflect all phases of current laboratory activities including sampling requirements in accordance with client and regulatory requirements. The laboratory should contact clients sampled by Earth Analytical for further direction and specify in the SOP the sampling requirements for both performance testing and monitoring requirements.	N	C
	Exception: The Auditor reviewed the procedures detailed in WI-SC1 Revision 5 Sample Receipt SOP against the verbal description provided by laboratory personnel. According to the SOP, the person delivering the samples signed the COC (Earth Analytical FRM-SC1 or client-supplied COC) relinquishing the samples into Earth Analytical custody, prior to working through sample receipt procedures. In actual practice, the sample receipt personnel inspected the samples to ensure all had been received by courier or client representative prior to acceptance and signature of the COC.	Low	2016 TNI Standard Volume 1 Module 2 Section 4.2.8.5	Laboratories shall maintain SOPs that accurately reflect all phases of current laboratory activities including sequencing of procedures in sample receipt.	N	C

Seq#	Finding	Category	Citation/Standard	Requirement Description	New (N)/ Repeat (R)	Legal (L)/ Comp. Syst. (C)
	Exception: The Auditor reviewed the procedures detailed in WI-OR3 Revision 5 – Atomx Operation. The Auditor noted that the SOP contained two different procedures for calibration using a standard calibration and a “Atomix Loop” calibration technique. According to laboratory personnel, the “Atomix Loop” process was instrument specific, but was not in use at that time. The Auditor noted that the SOP was difficult to follow. In addition, Section 10.1.3 did not include a description of the preparation of the GC/tuning solution, and Section 11.14.1 regarding quantitation did not reference the equations in Section 14.	Low	2016 TNI Standard Volume 1 Module 2 Section 4.2.8.5	Laboratories shall maintain SOPs that accurately reflect all phases of current laboratory activities, including calibration procedures listed in SOPs.	N	C
	Exception: The volatile sample freezer data log was labeled with an acceptance criterion of > 20 to -7°C. The logbook criterion should be listed as > - 20 to -7°C. The Auditor reviewed the freezer logbook, and no exceedances of temperature were noted. No formal review was documented in the logbook.	Low	2009 TNI Standard Volume 1 Module 2 Section 5.5.13.1	Laboratories shall maintain logbooks that accurately reflect the current acceptance criteria for support equipment.	N	C
	Exception: Thermometer K153784, used to monitor temperatures in the Volatile Refrigerator in the GC/MS preparation area, was recalibrated on 6/15/21. The previous correction factor was -0.6°C and the correction factor at the time of the audit was -1.0°C. The thermometer was properly labeled with the calibration date, due date and new correction factor. However, the logbook for recording the daily temperatures continued to use and report the -0.6°C correction factor.	Low	2009 TNI Standard Volume 1 Module 2 Section 5.5.13.1	Laboratories shall maintain logbooks that accurately reflect the current correction factors for support equipment. As part of the recalibration procedures, logbooks must also be reviewed and updated as necessary to reflect the new correction factors.	N	C

APPENDIX D-2: Eurofins Xenco Lab Audit

October 22, 2021

VIA ELECTRONIC MAIL ONLY

Martha Worsham
Environmental Specialist
Motiva Port Arthur Chemicals
4241 Savannah Ave.
Port Arthur, Texas 77640

Dear Ms. Worsham:

Enclosed is the final laboratory audit report for the benzene waste National Emissions Standards for Hazardous Air Pollutants (NESHAP) audit that was performed on September 10, 2021, at the Eurofins Xenco, LLC- Houston (Xenco) facility in Stafford, Texas. Lester J. Dupes, CEAC, CQA of Environmental Standards, Inc. (Environmental Standards) conducted the audit for the following purposes:

- To satisfy the biennial audit requirement within the existing Motiva Consent Decree to evaluate Xenco's ability to analyze benzene waste NESHAP compliance samples.
- To assess the Xenco facility with regard to capabilities and capacity relative to the analytical service needs of Motiva environmental professionals.
- To provide Xenco with feedback on laboratory operating issues relative to three general areas – method compliance, laboratory quality systems, and good laboratory practices.

The audit focused on potential analytical services (benzene waste NESHAP) that may be provided for the Motiva Port Arthur Chemicals refinery in Port Arthur, Texas. This analytical capability, as well as the associated peripheral non-analytical areas, were included in the audit.

During the audit at Xenco, brief interviews were conducted with the Analysts and Section Managers to gain an insight of the laboratory personnel's understanding of the analytical methods and standard operating procedures. By the very nature of an audit, some critical statements that should not be regarded as an overall indication of the laboratory's qualifications, are presented in this report. These statements should be regarded as representations of areas for laboratory operational improvement and/or areas deviating from the analytical methods or laboratory standard operating procedures.

Audit Report Prepared by,



Lester J. Dupes, CEAC, CQA
Senior Quality Assurance Chemist

Audit Report Reviewed by,



David A. Gratson, CEAC
Senior Technical Chemist/
Project Manager

Audit Report Reviewed and Approved by,



Rock J. Vitale, CEAC
Technical Director of Chemistry/
Principal

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Enc.

1.0 Audit Information

Business Name:	Motiva Port Arthur Chemicals	Audit Site Description:	Eurofins Xenco, LLC-Houston (Xenco) facility in Stafford, Texas – contract laboratory for Motiva
Business Unit:	Motiva Port Arthur Refinery	Location:	Port Arthur, Texas
Audit Type:	EHS	Audit Subtype:	Focused Environmental: BWON Contract Audit
Fieldwork Date:	September 10, 2021	Date of Last Audit Report:	October 14, 2019
Audit Managed By:	Martha Worsham	Audit Performed By:	Environmental Standards, Inc.

2.0 Executive Summary

Mr. Lester J. Dupes, CEAC, CQA, of Environmental Standards, Inc. (Environmental Standards) conducted a contract benzene waste operations NESHAP (BWON) laboratory compliance audit of the Eurofins Xenco, LLC (Xenco) Laboratory facility, which is located at 4147 Greenbriar Dr. Stafford, TX 77477. The previous BWON audit was performed at the Eurofins TestAmerica Houston, Texas laboratory facility, which was located at 6310 Rothway St., Houston, Texas. The Xenco laboratory network was acquired by Eurofins Environment Testing Group (Eurofins) in July 2020. As part of this process, the Eurofins TestAmerica facility was consolidated during 2020 into the Xenco laboratory facility and the Rothway Street facility closed.

Xenco is following established SW-846 Method 8260B, C, and D (BTEX) for analyzing BWON NESHAP samples based on client direction.

A pre-audit meeting was held with laboratory management and quality assurance (QA) personnel to discuss the scope of the audit, to identify a schedule for the implementation of the on-site audit and records review, and to discuss any concerns held by either the laboratory personnel or the client.

The on-site audit included a review of sample receipt and storage, bottleware preparation, waste handling, and the gas chromatography/mass spectroscopy (GC/MS) analytical area. Practices and procedures were observed, and interviews with the Analysts and Technicians were conducted to obtain insight into laboratory performance.

Requested records were also reviewed by the Auditor.

The laboratory is currently in the process of integrating Eurofins policies and procedures throughout the laboratory, The QA Manager has a designated Eurofins contact guiding the process.

One high, one medium and four low risk findings were noted in the sample receiving, bottleware, disposal, and volatile analysis areas.

Xenco is in the process of implementing the TALS laboratory information management system (LIMS) system in the second quarter of 2021 for sample login, data/records management, report generation and query functions, and invoicing.

All issues were discussed with laboratory management and QA personnel during a post-audit debrief meeting. Management and QA personnel indicated that they understood the findings and would implement documented corrective actions to address each finding.

3.0 Audit Findings

Risk Category	Exceptions	Observations	Total*
High	1	0	1
Medium	1	0	1
Low	3	1	4
Totals	5	1	6

*Includes (insert number – including 0) repeat findings

4.0 Site Background / Description

Xenco is a contract environmental laboratory that provides environmental analytical services for private and public-sector clients. The operating facility includes a 15,967 square foot operations area that is staffed by approximately 81 personnel with 58 of these being full time technical personnel. The laboratory facility has been undergoing extensive facility remodeling since the acquisition to accommodate the increased instruments from the consolidation.

The facility consists of a single building that houses the offices, laboratories, and utility areas. Signage for the dedicated sample delivery entry was noted by the Auditor. Motiva samples were picked up by laboratory personnel for delivery to the laboratory. The volatile organics preparation and analysis laboratories were segregated from other sample preparation areas within the buildings. The volatile sample preparation and analysis area were noted as being clean with sufficient space for the Analysts and the laboratory was under positive pressure to reduce potential contamination.

Facility security appeared adequate. During the audit, all exterior and critical interior doors were kept locked at all times, with the exception of the sample receiving door during business hours. Laboratory personnel used access codes to gain admittance to the laboratory. Once admitted to the main entrance, visitors were asked to sign in and out. Escorts were provided for visitors at all times.

5.0 Objective and Scope

5.1 Objective

The objective of this audit was to evaluate the compliance status of representative facility operations to ensure

that proper analytical and quality assurance/quality control (QA/QC) procedures are followed for BWON samples. The test method requested for investigation in the audit included benzene by SW-846 Method 8260C.

5.2 Scope/Approach of Work

Evaluate laboratory operations to ensure that proper analytical and QA procedures are followed in the performance of test methods for BWON samples contracted by Motiva.

- Interview key personnel including Laboratory Manager, Department Supervisor, Analysts, and sample receipt staff.
- Perform a visual inspection of the facility and all equipment as well as firsthand observation of all segments of the BWON sample route including bottleware preparation, sample receipt, storage, preparation, analysis, reporting, archival, and disposal.
- Evaluate the capability, methods, procedures, files, records, and QC data relevant to benzene analysis.
- Examine sample records, test reports, and supporting QC data for samples analyzed during the evaluation timeframe.
- Review the Quality Assurance Manual and quality system documentation.
- Evaluate laboratory compliance with its existing Quality Assurance Manual, standard operating procedures (SOPs), and other appropriate management systems.
- Review and observe sampling handling procedures, record management practices, and LIMS.
- Confirm laboratory compliance with analytical method requirements stated in 40 CFR Part 61.355 (c)(3)(iv).
- Evaluate status of laboratory certifications and accreditations.
- Review laboratory performance on applicable proficiency testing programs and internal/external audits.

Records/Documents Reviewed

Eurofins Xenco documents reviewed included the:

- Quality Assurance Manual;
- Master List of SOPs;
- Current instrumentation listing;
- SOPs for GC/MS volatile organics analysis;
- SOPs for sample receipt and handling;
- SOPs for bottleware preparation and shipping;
- SOP for waste handling and disposal;
- Biographies or resumes of key personnel;
- Method detection limit summaries;
- Copy of last state/NELAC audit and responses/corrective actions;
- Internal audits
- Latest set of performance evaluation (PE) analyses and results;
- Analyst training files;
- QA metrology and calibration records;
- Current certifications;
- Organizational chart; and

- Two recent data packages provided by Motiva - Note: Both work order numbers were performed at the previous laboratory facility and were not reviewed.

Xenco personnel interviewed included:

- Julian Martinez – Laboratory Director
- Stephanie Coch – Laboratory Quality Assurance Manager
- Pedro Palmar – Sample Receiving Group Leader
- Ezabel Mikhail- Volatile Organics Analyst III

Limitations:

Except for the concerns as noted in the findings, Xenco is meeting the requirements applicable to BWON samples. Importantly, audits are not exhaustive by nature and should be considered as representative of a snapshot in time of the facility's compliance program. The audit activities relied upon a representative review of available documents, select interviews, interviewee responses, as well as Auditor observation of activities occurring while the Auditor was on site.

Where infeasible to review all available information, the Auditor employed representative sampling techniques to evaluate certain activities, documents, or areas. The document review was further limited to the period from the date of the site visit back to either the most recent audit or 2 years, whichever was more recent.

5.3 Out of Scope

Not applicable.

5.4 Information Relevant to this Audit

Not applicable.

6.0 Audit Team and Stakeholders

Audit Manager:	Martha Worsham	Business Representatives:	Julian Martinez – Xenco
Audit Team Members:	Lester J. Dupes – Environmental Standards	Business Stakeholders:	

7.0 Distribution

To: Martha Worsham - Motiva

cc: Stephanie Coch - Xenco

Audit Results Definitions

Exception – A finding that is a departure from applicable statutes, regulations, legally prescribed standards or codes, contractual requirements, or company standards, policies, and procedures. There are two subtypes of Exceptions.

- **Legal Exception** – A type of Exception that is non-compliance with, or failure to demonstrate compliance with, applicable statutes, regulations, or legally prescribed standards or codes.
- **Compliance System Exception** – A type of Exception that is a departure from compliance standards, policies and procedures, or contractual requirements.

Observation – Any conditions, circumstances, practices, or activities where, although there are no Exceptions, there is a potential for departures from applicable statutes, regulations, legally prescribed standards or codes, contractual requirements, or company standards, policies, or procedures.

- Observations will also be given a subtype of Legal or Compliance System.

Repeat Finding – A finding, where the approved action date has passed, and that in the judgment of the Lead Auditor in consultation with Legal Counsel and appropriate and compliance personnel:

- is identical to a previously reported finding; or
- has substantially similar root causes that indicate a systemic failure; or
- the corrective action taken did not properly address the underlying issue.

Knowledge Share Comments – Knowledge Share Comments include information that an auditor shares with the Business to further enhance an effective process, recognize excellence, or observations made during the audit that would not otherwise be included in the Audit Report. Knowledge Share Comments' corrective actions need not be tracked or monitored in the audit finding tracking system. There are two types of Knowledge Share Comments:

- **Leading Practice** – An identified effective process which could be considered a leading practice for this particular business, site, and situation.
- **Opportunity** – An identified situation where controls, processes, or procedures could be strengthened to improve controls or add value to the business.

Risk Category Definitions

High Risk Category – The finding identifies a situation that presents an imminent endangerment to human health, risk of release, threat to the environment or threat to the ongoing operations of the facility.

Medium Risk Category – The finding identifies a situation that requires action, such as a report to a regulatory agency, but not necessarily immediate action, to improve risk control measures, and does not pose an imminent threat of release or endangerment.

Low Risk Category – The finding identifies a situation that is primarily administrative or easily corrected onsite and is not a High or Medium Category.

8.0 Detailed Findings Table

Seq#	Finding	Category	Citation/Standard	Requirement Description	New (N)/ Repeat (R)	Legal (L)/ Comp. Syst. (C)
	Exception: The Auditor reviewed both the obsolete and active SOP master lists and noted 105 active SOPs, with several SOPs being outside the 2-year review date. The Sample Custody SOP QS-16-008, dated 4/10/2018, was overdue for the 2-year review cycle as detailed in the QA Manual. The SOPs associated with BWON analysis have been reviewed and are due in 2022 for the next review. The laboratory QA Manager indicated that a process and time frame had been developed to convert all SOPs including non-analytical SOPs to the Eurofins corporate template for consistency.	Medium	XENCO Corporate Quality Assurance Manual, XL-QS-QAM, Revision 7, Section 13.4.7	Continue to follow the developed plan for SOP conversion and review. Evaluate the plan to ensure SOPs that are used on a daily basis are reviewed and updated. This should include a priority review of the Sample Custody SOP.	N	C
	Exception: The laboratory Sample Receipt Group Supervisor demonstrated measurement of sample receipt temperatures using an infrared (IR) gun by pointing it at the side of the glass jar and not on a labeled surface. Although the Sample Custody SOP did not detail where the temperature was to be measured, Section 6.1.6 of the QAM indicated to not take the temperature on the sample bottle label.	Low	2016 TNI Standard Volume 1 Module 2 Section 4.2.8.5	Laboratories shall maintain SOPs that accurately reflect all phases of current laboratory activities including sequencing of procedures in sample receipt. The laboratory should consider modification of this practice to always measure sample receipt temperatures on the label to reduce error by sample bottle emissivity changes due to bottle material type.	N	C
	Exception: The Auditor questioned the Sample Receipt Group Supervisor regarding the practice of inserting a thermometer directly into the sample bottle as described in Sample Custody SOP QS-16-008, Section 8.5.3.4 for measurement of sample receipt temperature. According to the Supervisor, this practice was not performed.	Low	2016 TNI Standard Volume 1 Module 2 Section 4.2.8.5	Laboratories shall maintain SOPs that accurately reflect all phases of current laboratory activities including removal of procedures no longer performed.	N	C

Seq#	Finding	Category	Citation/Standard	Requirement Description	New (N)/ Repeat (R)	Legal (L)/ Comp. Syst. (C)
	Exception: The laboratory documented bottle requests and shipments on a Shipping Order Form. A review of multiple bottle order forms indicated that lot numbers of bottles were not recorded on the form for traceability, although a space for recording this information was present.	Low	2016 TNI Standard Volume 1 Module 2 Section 5.6	The lot number of the bottles sent to each client should be recorded on the bottle shipping order form to maintain traceability to samples collected.	N	C
	Observation: The laboratory sample bottleware personnel, did not label the stock bottle boxes with a date received or date opened to maintain a "first-in first-out" scenario.			Laboratories should ensure consumables are used in a first-in first-out basis to ensure materials are used in order of receipt.		
	Exception: The Auditor inspected the laboratory dumpster and noted a very large quantity of empty sample bottles that exhibited client information on the bottle labels. This dumpster was located in an unsecure area next to the laboratory. The Laboratory QAM also indicated that all glass containers were crushed prior to disposal. This process was not followed.	High	2016 TNI Standard Volume 1 Module 2 Section 5.8.1 and XENCO Corporate Quality Assurance Manual, XL- QS-QAM, Revision 7, Section 6.5.4	Laboratories shall ensure that bottle labels are removed, covered or bottles crushed to ensure client confidentiality is maintained.	N	C

Seq#	Finding	Category	Citation/Standard	Requirement Description	New (N)/ Repeat (R)	Legal (L)/ Comp. Syst. (C)
	Exception: The label on the R-53 refrigerator listed a thermometer correction factor of + 0.1 degrees; however, this correction factor was not the actual current correction factor at the time of the audit. The accurate correction factor at the time of the audit was 0.0°C.	Low	2016 TNI Standard Volume 1 Module 2 Section 5.5.13.1	Laboratories shall maintain documentation including labels and logbooks that accurately reflect the current correction factors for support equipment. As part of the recalibration procedures, logbooks must also be reviewed and updated as necessary to reflect the new correction factors.	N	C

APPENDIX E

CD Section IX Environmental Mitigation Projects Reporting

Motiva's response for this section has been provided in the main body of the Report. No additional information is presented in Appendix E.

APPENDIX F

CD Appendix 5.1 Air Monitoring Semi-Annual Report

Motiva's response for this section has been provided in the main body of the Report. No additional information is presented in Appendix F.